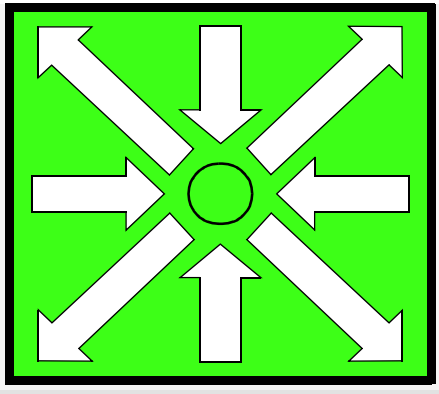
# Cisco MC3810



## Supports Management Module SM-CIS1005

APRISMA SPECTRUM® POWERED SOLUTIONS

Device Management

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# Introduction

This section introduces the SPECTRUM Device Management documentation for Cisco MC3810 devices.

This introduction to the Device Management documentation for Cisco MC3810 devices contains the following information:


- *Purpose and Scope* (Page 6)
- *Required Reading* (Page 6)
- *Supported Devices* (Page 7)
- *The SPECTRUM Model* (Page 7)


## Purpose and Scope

Use this documentation as a guide for managing the Cisco MC3810 device with the SPECTRUM management module SM-CIS1005. The documentation describes the icons, menus, and views that enable you to remotely monitor, configure, and troubleshoot the Cisco MC3810 device through software models in your SPECTRUM database.

Only information specific to the supported management module is included in this document. For general information about device management using SPECTRUM and for explanations of basic SPECTRUM functionality and navigation techniques, refer to the documentation listed under Required Reading.

## Required Reading

To use this documentation effectively, you must be familiar with the information covered by the other SPECTRUM online documentation listed below.

- ***Getting Started with SPECTRUM for Operators***
- ***Getting Started with SPECTRUM for Administrators***
- ***How To Manage Your Network with SPECTRUM***
- ***SPECTRUM Views***
- ***SPECTRUM Menus***
- ***SPECTRUM Icons***

# Supported Devices

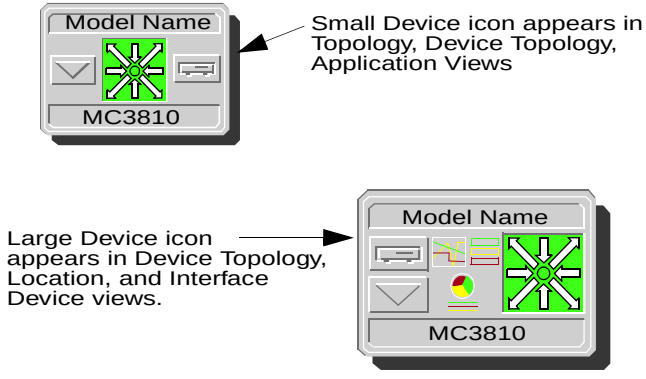
The Cisco MC3810 is a multiservice access concentrator that integrates data, voice, and video onto public or private Frame Relay, Asynchronous Transfer Mode (ATM), or leased line networks.

The Cisco MC3810 connects to any standard private branch exchange (PBX) switch, key system, or telephone, and provides up to 30 channels of voice. The MC3810 supports tie-line and ring-down modes and dual tone multifrequency (DTMF) digit-based per-call switching, using dialed digits to select destination sites and network calls. It may even eliminate the need for PBX switching at small sites when telephones and trunks are connected to the MC3810 and it is used as a voice switch.

# The SPECTRUM Model

SPECTRUM uses a single device model type, **Cisco_MC3810**, for modeling the Cisco MC3810. MC3810 models are represented in SpectroGRAPH views by Device icons. As shown below, the Device icon varies slightly depending on the kind of view in which it appears.

**Figure 1: Small and Large Device Icons**


Model Name
MC3810
Small Device icon appears in Topology, Device Topology, Application Views
Large Device icon appears in Device Topology, Location, and Interface Device views.
Model Name
MC3810

The device-specific Icon Subviews menu options available from the Device icon are listed below.

| Option | Accesses the... |
|---|---|
| Fault Management | Fault Management view, which is described in the ***How to Manage Your Network with SPECTRUM*** documentation. |
| Device | *Device View* (Page 14) |
| Device Topology | *Device Topology View* (Page 19) |
| Application | *Application View* (Page 20) |
| Configuration | *Configuration View* (Page 89) |
| Model Information | *Model Information View* (Page 101) |
| Primary Application | Menu options that let you select either Gen Bridge App or MIB-II as the primary application. |

The rest of this document covering management module SM-CIS1005 is organized as follows:


- *Tasks* (Page 9)
- *Events* (Page 11)
- *CiscoView* (Page 12)
- *Device View* (Page 14)
- *Device Topology View* (Page 19)
- *Application View* (Page 20)
- *Performance Views* (Page 86)
- *Configuration View* (Page 89)
- *Model Information View* (Page 101)

# Tasks

This section lists device management tasks alphabetically and provides links to descriptions of the views and/or tables used to perform the task.

## Configure a Port

- IP Address Label (Page 16)
- Interface Configuration View (Page 17)
- Interface Configuration Table (Page 90)
- Interface Address Translation Table View (Page 92)

## Configure the Device

- Secondary Address Panel (Page 18)
- Chassis Information View (Page 47)
- Modem Application (Page 49)
- Flash Application (Page 59)

## Create LANs

- Discover LANs (Page 92)

## Create Messages

- Event Messages (Page 11)

## Enable or Disable Redundant Addresses

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- Common Applications (Page 21)
- Generic Routing Applications (Page 23)
- Optional Applications (Page 46)

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- Update .profile file (Page 12)

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- Buffer Management View (Page 92)

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- Interface Device View (Page 14)
- Device Performance View (Page 86)
- Port Performance View (Page 87)

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- Default Peer Serial Interface STUN Route (Page 45)

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- BGP4 Peer Admin Status (Page 33)
- Local ACK-BSTUN Connection (Page 42)
- Terminal Server Line View (Page 75)

## Set Environment Variables

- EnvMon Application (Page 68)

## Set Thresholds

- Interface Thresholds (Page 17)
- IPX Accounting Information (Page 37)
- Model Information View (Page 101)

## Update the Ping Request List

- Ping Request Table View (Page 62)

## View IF/Port/App Statistics

- Interface Device View (Page 14)
- Interface Icons (Page 15)
- Interface Status View (Page 17)

## View/Change Interface IP Address

- Secondary Address Panel (Page 18)

## View Current Interface/Port Status

- Interface Device View (Page 14)
- Administrative Status (Page 17)
- Device Configuration View (Page 89)
- Reconfigure Model (Page 92)
- Network/Host Configuration View (Page 96)

# Events

This section provides the range of event messages that are specific to the Cisco MC3810.

The Cisco MC3810 has several event and alarm messages that are specific to its devices. If these messages are not sufficient and you wish to create your own messages, or view the existing messages for the MC3810, you can do so using the ***ECEditor***.

The event messages for the MC3810, which range from **Event03250000 to Event03250002**, can be found in the following directory:

**<install area>/SG-Support/CsEvFormat**

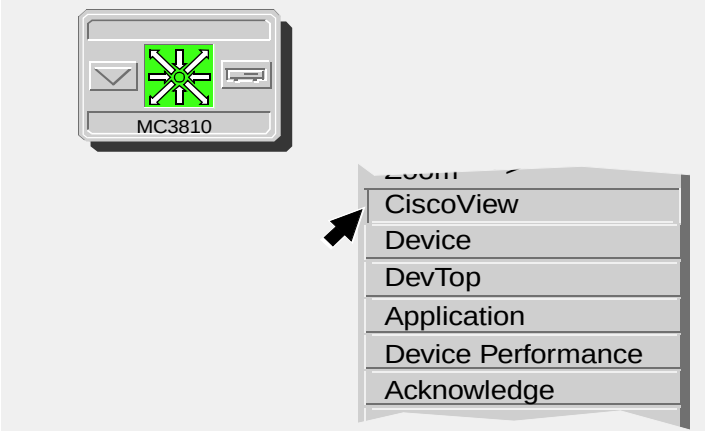
# CiscoView

This section describes how to access Cisco's CiscoView management software from SPECTRUM.

CiscoView is management software specific to Cisco Routers.

The Cisco_MC3810 model type provides a menu option from the Device icon that is used to launch CiscoView.

In order for this menu option to function you must update your **`.profile`** file to map this menu selection to where CiscoView is located on your system.




**Note:**

CiscoView 3.0 will appear as "Cisco View" on your device menu after the steps given below have been followed. This should not be confused with "CiscoView", which denotes the CiscoWorks 2000 CiscoView. The CiscoWorks 2000 menu picks will only appear in the device menu if the SPECTRUM Adapter script has been run. See the CiscoWorks 2000 documentation for further information.

**For HP-UX and Solaris**

Add the following information to the `/opt/SPECTRUM/spectrum60.env` file:

```
#CiscoView 3.0

export CVIEW =<path_to_ciscoview>
```

**For Windows NT and Window 2000**

From the Start>Run window, type

`regedit` (registry editor)

Navigate to
**HKEY_LOCAL_MACHINE>SOFTWARE> Aprisma Management Technologies> Spectrum60> Environment**

Choose **Edit>New>String Value**

Type `CVIEW` for the name, and
`<path_to_ciscoview>` as the string value.

# Device View

This section describes the Device view and its associated subviews for models of Cisco MC3810 devices in SPECTRUM.

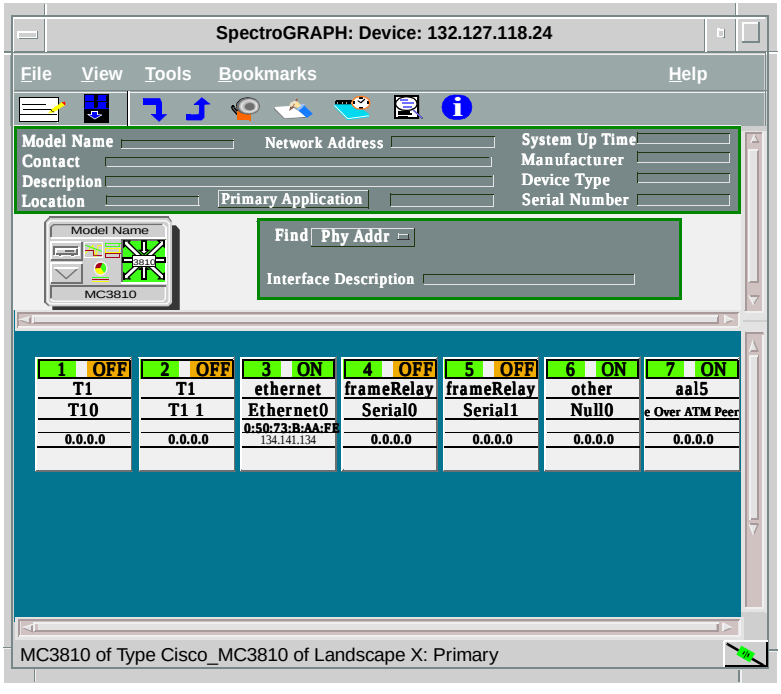
Device views use icons and labels to represent the modeled device and its components, such as modules, ports, and applications. There is one type of Device view for Cisco_MC3810 models, the Interface Device View.

## Interface Device View

***Access:*** *From the **Icon Subviews** menu for the Interface icon, select **Device**.*

This view provides dynamic configuration and performance information for each of the device's serial/network I/O ports, which are represented by Interface icons in the bottom panel of the view, as shown in Figure 2. The middle panel of the view also displays a Device icon, which allows you to monitor the device operation and access other device-specific views.

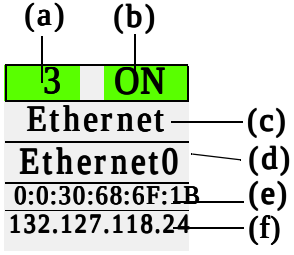
**Figure 2: Interface Device View**



# Interface Icons

Figure 3 shows a closeup of an Interface icon from an Interface Device view. Most of the informational labels on the icon also provide double-click access to other views, as explained in the following label descriptions.

**Figure 3: Interface Icon**




**a** Interface Number Label

**b** IF Status Label

**c** Interface Type Label

**d** Network Type Label

**e** Physical Address Label

**f** IP Address Label

### Interface Number Label

This label displays the interface number.

### IF Status Label

This label displays the current Operational Status of the interface (see Table 1). Note that the background color of the label also depends on the interface's current Administrative Status, which is set by the user in the *Interface Status View* (Page 17). This view can be accessed by double-clicking the label.

**Table 1: Interface Status Label Colors**

| Color | Operational Status | Administrative Status | Label Text |
|---|---|---|---|
| Green | ON | ON | ON |
| Blue | OFF | OFF | OFF |
| Yellow | OFF | ON | OFF |
| Red | Testing | Testing | Test |

### Interface Type Label

This label identifies the type of interface — e.g., Ethernet, FDDI, Other, etc. Double-click this label to access the *Interface Configuration - Information View* (Page 17).

### Network Type Label

This label identifies the type of network this interface is connected to. Double-click the label to open the Model Information view for the interface.

### Physical Address Label

This label displays the physical address of the Cisco MC3810 interface. Double-click the label to open the Interface Address Translation table. This table cross-references device IP addresses to device MAC (Ethernet) addresses for selected nodes between networks. Double-clicking on any column entry opens an address-specific Address Translation Table Information view. This view provides the same information as the corresponding row for the IF Address Translation table, but allows you to modify field values.

### IP Address Label

This label displays the IP address for this Interface. Double-click this label to open the Secondary Address panel. This panel provides name, network address, and subnet mask information for the interface. Any of the network information entries from this panel can be displayed on this label of the Interface icon.

## Interface Icon Subviews Menu

Table 2 lists the Icon Subviews menu options available for the Interface icon.

**Table 2: Interface Menu Options**

| Option | Opens the . . . |
|---|---|
| Performance Filter | *Port Performance View* (Page 87). |
| Detail | Interface Detail view, which displays Packet, Error, and Discard Breakdown pie charts. |
| IF Status | *Interface Status View* (Page 17). |
| IF Configuration | *Interface Configuration - Information View* (Page 17). |
| Model Information | *Model Information View* (Page 101). |
| IF Address Translation Table | Interface Address Translation Table view, which shows the Physical and Network address for each interface. |
| Secondary Address Panel | *Secondary Address Panel View* (Page 18). |
| Thresholds | Interface Threshold view, which allows you to set the thresholds for; load, packet rate, error rate, and % discarded. |

# Interface Status View

***Access:*** *From the **Icon Subviews** menu for the Interface icon in the Interface Device view, select **IF Status**.*

This view provides information on the operational status of the interface and allows you to enable or disable the port.

### Operational Status
The current state of the interface (Up, Down, or Testing).

**Administrative Status**

This button allows you to select the desired operational state of the interface (On, Off, Testing, Default).

# Interface Configuration - Information View

***Access:*** *From the **Icon Subviews** menu for the Interface icon in the Interface Device view, select **IF Configuration**.*

This view provides the following information.

### Admin Status
The desired operational state of the interface (Up, Down, or Testing).

### Interface Index
Refers to this interface's number in sequential order of interfaces.

### Local Description
User configurable interface description.

### Physical Address
The Ethernet (MAC) address of the interface.

### Bandwidth
The estimated bandwidth of the interface, measured in bits per second. For interfaces that do not vary in bandwidth, or for which no accurate estimate can be made, a nominal bandwidth is provided.

### Queue Length
The length of the outbound packet queue, in packets.

### Packet Size
The largest packet that can be transmitted or received by the port, displayed in octets.

### Interface Type
Displays the device interface type; types are PPSerial, Ethernet, or FDDI.

### Last Change
The System UpTime value when the interface entered its current operational state.

**Change Reason**
The reason for the last operational change for the interface.

# Secondary Address Panel View

***Access:*** *From the **Icon Subviews** menu for the Interface icon in the Interface Device view, select **Secondary Address Panel**.*

This panel provides a table of IP addresses and masks obtained from the Address Translation table within the device's firmware. You can change the current address displayed in the **IP Address** field by selecting an entry from the table in this panel and clicking the **Update** button.

# Device Topology View

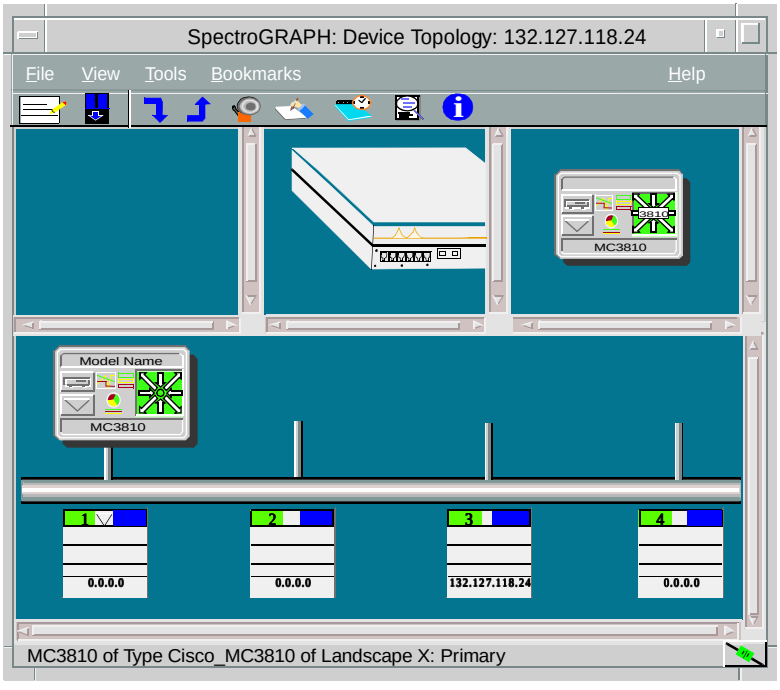
This section provides a brief description of the Device Topology view available for models of Cisco MC3810 devices in SPECTRUM.

***Access:*** *From the* ***Icon Subviews*** *menu for the Cisco_MC3810 Device icon, select* ***DevTop****.*

The lower panel of the Interface Device Topology view (Figure 4) uses interface icons to represent the device's serial/network I/) ports. These icons provide the same information and menu options as those described in the *Interface Device View* (Page 14). If there is a device connected to a particular interface, a device icon appears on the vertical bar above the interface icon along with an icon representing the network group that contains the device.

For further information on Device Topology views, refer to the ***SPECTRUM Views*** documentation.

**Figure 4: DevTop View**



# Application View

This section describes the Application view and the associated application-specific subviews available for models of Cisco MC3810 devices in SPECTRUM.

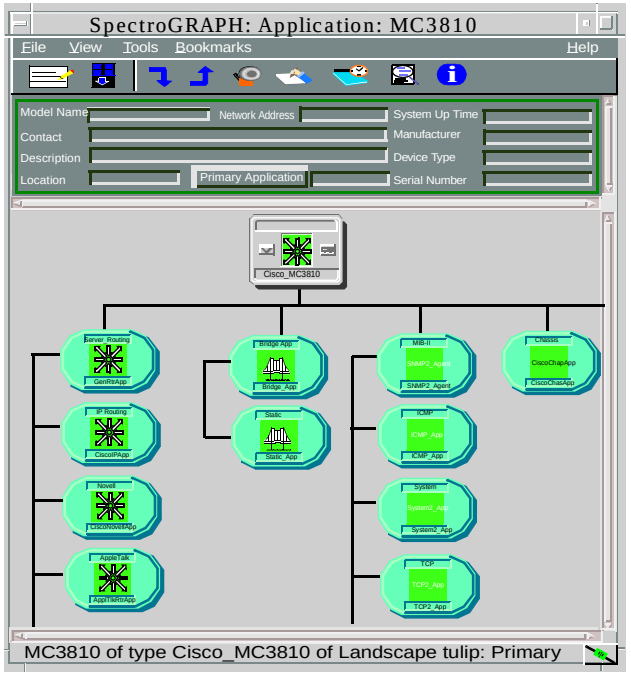
***Access:*** *From the* ***Icon Subviews*** *menu for the Cisco_MC3810 Device icon, select* ***Application****.*

When a device model is created, SPECTRUM automatically creates models for each of the major and minor applications supported by the device. The Application view identifies all of these application models, shows their current condition status, and provides access to application-specific subviews.

Figure 5 shows an Application view in its default mode (Icon) where each of the application models is represented by an Application icon. The Application icons are arranged hierarchically under a Device icon, with major applications in the top row and their respective minor applications stacked directly below.

If you prefer to see applications displayed by name only, in a single vertical list, select **View > Mode > List.**

**Figure 5: Cisco_MC3810 Application View**



# Supported Applications

SPECTRUM's applications can be grouped within two general categories as follows:

- Applications associated with non proprietary MIBs. See *Common Applications* below.
- Applications associated with device-specific MIBs. See *Device-Specific MIBs* (Page 22).

# Common Applications

For the most part, these applications represent the non proprietary MIBs supported by your device. Listed below (beneath the title of the SPECTRUM document that describes them) are some of the common applications currently supported by SPECTRUM.

**Note:**

The documents listed below (in bold font) are available for viewing at:
www.aprisma.com/manuals/

- ***Routing Applications***
  - Generic Routing
  - Repeater
  - AppleTalk
  - DECnet
  - OSPF
  - OSPF2
  - BGP4
  - VRRP
- ***Bridging Applications***
  - Ethernet Special Database
  - Spanning Tree
  - Static
  - Transparent
  - PPP Bridging
  - Source Routing
  - Translation
  - QBridge
- ***MIB II Applications***
  - SNMP
  - IP
  - ICMP
  - TCP
  - System2
  - UDP
- ***Transmission Applications***
  - FDDI
  - Point to Point
  - DS1
  - DS3
  - RS-232

- WAN
- Frame Relay
- Token Ring
- Ethernet
- Fast Ethernet
- rfc1317App
- rfc1285App
- rfc1315App
- 802.11App
- SONET

- ***Technology Applications***
  - APPN
  - ATM Client
  - DHCP
  - PNNI
  - rfc1316App
  - DLSw

## Device-Specific MIBs

SPECTRUM imports the following device-level proprietary MIBs into its database:

- CISCO-CHASSIS-MIB
- CISCO-ENVMON-MIB
- CISCO-QUEUE-MIB
- CISCO-PING-MIB
- CISCO-TS-MIB
- CISCO-CDP_MIB
- CISCO-BSTUN-MIB
- CISCO-VINES-MIB
- CISCO-XNS-MIB

These MIBs can be used in conjunction with SPECTRUM's optional customization products (referred to as the Level I Tool Kits) to create application models and views that display the condition of selected MIB objects.

**Note:** Aprisma Management Technologies can provide training, technical assistance, and custom engineering support services for creating application models and their associated views.

The views and subviews available for Cisco MC3810 device-specific applications are described in the rest of this section, grouped by major application as listed below:


- *Generic Routing Applications* (Page 23)
- *Cisco Chassis Application* (Page 47)
- *Cisco Modem Application* (Page 49)
- *Cisco Flash Application* (Page 58)
- *Cisco Ping Application* (Page 62)
- *Cisco Queue Application* (Page 64)

- *ATM Client Application* (Page 66)
- *EnvMon Application* (Page 68)
- *Discovery Application* (Page 70)
- *Cisco Terminal Server Application* (Page 74)
- *Cisco Memory Pool Monitor Table View* (Page 77)
- *Cisco Frame Relay Application* (Page 78)

# Generic Routing Applications

This major application has one menu option that provides access to the following view:

## Routing Protocol Comparison View

This view displays pie charts that present the following performance statistics for each routing application.

- Frames Forwarded
- Frames Delivered
- Frames Transmitted
- Errors
- Discards



The following Generic Routing major applications are available.

- *AppleTalk Routing Application* (Page 24)
- *IP Routing Application* (Page 32)
- *BGP4 Application* (Page 33)
- *Novell Routing Application* (Page 36)
- *Vines Routing Application* (Page 38)
- *XNS Routing Application* (Page 41)
- *Cisco BSTUN Application* (Page 42)
- *Cisco STUN Application* (Page 44)

# AppleTalk Routing Application

This major application (model type ApplTlkRtrApp) provides the following application-specific subviews. The **Detail** option provides access to pie charts that display standard Packet Breakdown, Error Breakdown, and Discard Breakdown information.


- *RTMP Table View* (Page 24)
- *Kinetics Internet Protocol Table View* (Page 25)
- *Name Binding Protocol Table View* (Page 26)
- *ZIP Table View* (Page 26)
- *LocalTalk Interface Table View* (Page 27)
- *ATPORT Table View* (Page 28)
- *ARP Table View* (Page 29)
- *AppleTalk Echo View* (Page 29)


## RTMP Table View

***Access:*** *From the **Icon Subviews** menu for the ApplTlkRtrApp Application icon, select **RTMP Table**.*

This view displays the following information for the Routing Table Management Protocol.

### RTMP Hops
The number of hops required to reach the destination network for this entry.

### RTMP Next Hop
The IP address of the next hop in the route to this entry's destination network.

### RTMP Type
The type of this network entry.

### RTMP State
The state of this network entry.

### Start Net.Node
The first AppleTalk network address in the range for this routing entry. This address is a two-octet DDP network address in network byte order.

### END Net.Node
The last AppleTalk network address in the range for this routing entry. This address is a two-octet DDP network address in network byte order.

### RTMP Port
The network address configured for this port.

# Kinetics Internet Protocol Table View

***Access:*** *From the **Icon Subviews** menu for the ApplTlkRtrApp Application icon, select **KIP Table**.*

This view displays the following information for the Kinetics Internet Protocol.

### Kip Broadcast Add
The form of the IP address used to broadcast on this network.

### Kip Next Hop
The IP address of the next hop in the route to this entry's destination network.

### Kip Type
The type of this network entry.

### Kip State
The state of this network entry.

### Kip Net Start
The first AppleTalk network address in the range for this routing entry. This address is a two octet DDP network address in network byte order.

### Kip Net End
The last AppleTalk network address in the range for this routing entry. This address is a two octet DDP network address in network byte order.

### Kip Share
If the information in this entry is propagated to other routers as part of a routing protocol, the value of this variable is equal to "shared." Otherwise its value is "private."

### Kip Core
The status of this network as a Kip Core network.

### Kip Hop Count
The number of hops required to reach the destination network for this entry.

## Name Binding Protocol Table View

***Access:*** *From the **Icon Subviews** menu for the ApplTlkRtrApp Application icon, select **NBP Table**.*

This view displays the table of NBP services registered on this entity.

### Name Binding Index
The index of this NBP entry. This value ranges from 1 to the number of NBP entries currently registered on this entity.

### Name Binding Object
The name of the service described by this entity.

### Name Binding Type
The type of service described by this entity.

### Name Binding Zone
The zone the service described by this entity is registered in.

### Name Binding State
The state of this NBP entry.

## ZIP Table View

***Access:*** *From the **Icon Subviews** menu for the ApplTlkRtrApp Application icon, select **ZIP Table**.*

This view displays the relationship between network numbers and zone names.

### Zone Name
The ASCII zone name for this entry.

### Zone State
The state of this ZIP entry.

### Zone Net Start
The network that starts the range for this entry. This address is a two-octet DDP network address in network byte order.

### Zone Net End
The network that ends the range for this entry. This address is a two-octet DDP network address in network byte order. If the network to which this zip entry pertains is a Phase 1 network or a non-extended network, the value for Zone Net End will be two bytes of zero.

### Zone Index
An integer that is unique to the Zone Name that is present in this table entry. For any given zone name, every entry that has an equal Zone Name will have the same Zone Index.

# LocalTalk Interface Table View

***Access:*** *From the **Icon Subviews** menu for the ApplTlkRtrApp Application icon, select **LLAP Table**.*

This view displays the following information for the LocalTalk Link Access Protocol (LLAP).

### Interface Index
The LLAP interface to which this entry pertains.

### In Packets
The total number of good packets received on this LocalTalk interface.

### Out Packets
The total number of packets transmitted on this interface.

### No Handler
The total number of good packets received for which there was no protocol handler.

### Length Errors
The total number of packets received whose actual length did not match the length in the header.

### Total In Errors
The total number of packets containing errors received.

### Total Collision
The total number of collisions assumed due to the lack of a lapCTS reply.

### Total Defer
The total number of times this interface deferred to other packets.

### No Data Errors
The total number of times this interface received a lapRTS packet and expected a data packet, but did not receive any data packet.

### Random CTS Errors
The total number of times this interface received a lapCTS packet that was not solicited by a lapRTS packet.

### FCS Errors
The total number of times this interface received a packet with an FCS (Frame Check Sequence) error.

# ATPORT Table View

***Access:*** *From the **Icon Subviews** menu for the ApplTlkRtrApp Application icon, select **ATPORT Table**.*

This view displays the following AppleTalk port information.

### Port Index
A unique value for each AppleTalk port. Its value is between 1 and the total number of AppleTalk ports. The value for each port must remain constant at least from the re-initialization of the entity's network management system to the next re-initialization.

### Port Description
A text string containing printable ASCII characters providing information about the port.

### Port Type
The type of port, distinguished by the protocol immediately below DDP in the protocol stack.

### Start Net.Node
The first AppleTalk network address in the range configured for this port. This is a two-octet DDP network address in network byte order.

### End Net.Node
The last AppleTalk network address in the range configured for this port.

### Port Net Address
The network address configured for this port.

### Port Status
The configuration status of this port.

### Port Net Config
The network configuration for this port.

### Port Zone Config
The configuration status of the zone information for this port.

### Port Zone
The port zone configured for this AppleTalk port.

### Port If Index
The physical interface associated with this AppleTalk port.

## ARP Table View

***Access:*** *From the **Icon Subviews** menu for the ApplTlkRtrApp Application icon, select **ARP Table**.*

This view displays information about the equivalence of AppleTalk Network Address to the link layer physical address for AppleTalk Address Resolution.

### ARP Interface Index
The interface on which this entry's equivalence is effective.

### ARP Physical Address
The media-dependent physical address.

### ARP Network Address
The AppleTalk Network Address corresponding to the media-dependent physical address.

## AppleTalk Echo View

***Access:*** *From the **Icon Subviews** menu for the ApplTlkRtrApp Application icon, select **Echo**.*

This view displays a single AppleTalk Echo Packets pie chart that shows the number of AppleTalk Echo packets from a network device that transmitted an Echo Request and the number of AppleTalk Echo packets from a network device that transmitted an Echo Reply.

# DECnet Routing Application

This application (CiscoDNApp) has seven Icon Subviews menu options. The **Detail** option provides access to pie charts that display standard Packet Breakdown, Error Breakdown, and Discard Breakdown information. The other options provide access to the following views:


- *Host Table View* (Page 30)
- *Area Table View* (Page 30)
- *Interface Cost Table View* (Page 31)
- *DECnet Routing Level 1 View* (Page 31)
- *DECnet Routing Level 2 View* (Page 31)
- *DECnet Routing Hello View* (Page 31)


## Host Table View

***Access:*** *From the **Icon Subviews** menu for the CiscoDNApp Application icon, select **Host Table**.*

This view provides the following information.

### Host
The DECnet address of the host forwarding DECnet packets.

### Cost
The aggregate cost to reach the destination node.

### Hops
The number of hops to reach the destination node.

### Interface
The port number of the interface forwarding DECnet packets.

### Next Hop
The node number of the next node to forward DECnet packets.

### Age
The maximum time a DECnet packet can exist if not forwarded before being discarded.

### Priority
The priority value for determining the default router. The DECnet protocol selects the router with the highest priority value for routing DECnet packets.

## Area Table View

***Access:*** *From the **Icon Subviews** menu for the CiscoDNApp Application icon, select **Area Table**.*

This view provides the following information.

### Host
The DECnet address of the host forwarding DECnet packets.

**Cost**
The aggregate cost to reach the destination area.

**Hops**
The number of hops to reach the destination area.

**Interface**
The port number of the interface forwarding DECnet packets.

**Next Hop**
The node number of the next node to forward DECnet packets.

**Age**
The maximum time a DECnet packet can exist if not forwarded before being discarded.

**Priority**
The priority value for determining the default router. The DECnet protocol selects the router with the highest priority value for routing DECnet packets.

## Interface Cost Table View

***Access:*** *From the **Icon Subviews** menu for the CiscoDNApp Application icon, select **Interface Cost**.*

This view displays the DECnet circuit cost for each interface. Double-clicking on a column entry allows you to access the entry-specific Interface Cost Table view.

## DECnet Routing Level 1 View

***Access:*** *From the **Icon Subviews** menu for the CiscoDNApp Application icon, select **Level 1 Routing**.*

This view displays a color-coded pie chart of the following DECnet Level 1 routing statistics:

- Received Packets
- Sent Packets
- Received Packets from another area
- Received Packets that contained errors

## DECnet Routing Level 2 View

***Access:*** *From the **Icon Subviews** menu for the CiscoDNApp Application icon, select **Level 2 Routing**.*

This view displays a color-coded pie chart of the following DECnet Level 2 routing statistics.

- Received Packets
- Sent Packets
- Received Packets from another area

## DECnet Routing Hello View

***Access:*** *From the **Icon Subviews** menu for the CiscoDNApp Application icon, select **Hellos**.*

This view displays a color-coded pie chart of the following DECnet Hello statistics:

- Received Hellos

- Sent Hellos
- Received Hellos from another area
- Received Hellos that contained errors

# IP Routing Application

This application, with exception of the IP Accounting Table view described below, is described in detail in ***Routing Applications***.

## Cisco IP Accounting Table View

***Access:*** *From the **Icon Subviews** menu for the CiscoIPApp Application icon, select **Accounting**.*

This view provides information about the network traffic flow between devices and includes a list of IP addresses. The IP Accounting Table view provides the following information.

### Source

The source IP address for data transmitted to the destination IP address.

### Destination

The destination IP address for data transmitted from the source IP address.

### Packets

The total number of IP packets transmitted from the source IP address to the destination IP address.

### Bytes

The total number of bytes transmitted from the source IP address to the destination IP address.

**Checkpoint Accounting**

This button allows you to access the Cisco Checkpoint Accounting Table. Table 3 provides definitions for the fields presented in the Accounting Table.

**Table 3: Checkpoint View Information**

| Field | Definition |
|---|---|
| Source | The source IP address for data transmitted to the destination IP address in the checkpoint matrix. |
| Destination | The destination IP address for data transmitted from the source IP address in the checkpoint matrix. |
| Packets | The number of IP packets transmitted from the source IP address to the destination IP address in the checkpoint matrix. |
| Bytes | The total number of bytes transmitted from the source IP address to the destination IP address in the checkpoint matrix. |

# BGP4 Application

This application (CiscoRouter_BGP4) provides the following application-specific subviews:

- *Peer Table* (Page 33)
- *Path Attribute Table* (Page 35)

## Peer Table

***Access:*** *From the **Icon Subviews** menu for the BGP4_App Application icon, select **Peer Table**.*

The BGP Peer Table contains information about the BGP peer.

### Identifier
The BGP Identifier of the BGP peer.

### State
The BGP peer connection state.

### Admin Status
The desired state of the BGP connection. A transition from “stop” to “start” will cause the BGP Start Event to be generated. A transition from “start” to “stop” will cause the BGP Stop Event to be generated. This parameter can be used to restart BGP peer connections.

### Negotiated Ver.
The negotiated version of BGP running between the two peers.

**Local Addr.**
The local IP address of this entry's BGP connection.

**Local Port**
The local port for the TCP connection between the BGP peers.

**Remote Addr**
The remote IP address of this entry's BGP peer.

**Remote Port**
The remote port for the TCP connection between the BGP peers.

**Remote As**
The remote autonomous system number.

**In Updates**
The number of BGP UPDATE messages received on this connection. This object should be initialized to zero (0) when the connection is established.

**Out Updates**
The number of BGP UPDATE messages transmitted on this connection. This object should be initialized to zero (0) when the connection is established.

**In Total Message**
The total number of messages received from the remote peer on this connection. This object should be initialized to zero when the connection is established.

**Out Total Message**
The total number of messages transmitted to the remote peer on this connection. This object should be initialized to zero when the connection is established.

**Last Error**
The last error code and subcode seen by this peer on this connection. If no error has occurred, this field is zero.

**Established Tran**
The total number of times the BGP FSM transitioned into the established state.

**Established Time**
This timer indicates how long (in seconds) this peer has been in the Established state or how long since this peer was last in the Established state. It is set to zero when a new peer is configured or the router is booted.

**Retry Interval**
Time interval in seconds for the ConnectRetry timer.

**Hold Time**
Time interval in seconds for the Hold Timer established with the peer.

**Keep Alive**
Time interval in seconds for the Keep Alive timer established with the peer.

**Hold Time**
Hold Time Configured. Time interval in seconds for the Hold Time configured for this BGP speaker with this peer.

**Keep Alive**
Keep Alive Configured. Time interval in seconds for the Keep Alive timer configured for this BGP speaker with this peer.

**Min ASOrig. Int.**
Time interval in seconds for the MinASOrigination Interval timer. Suggested value for this timer is 15 seconds.

**Min Route Advert**
Time interval in seconds for the MinRouteAdvertisementInterval timer. Suggested value for this timer is 30 seconds.

**In Update Elapse**
Elapsed time in seconds since the last BGP UPDATE message was received from the peer.

## Path Attribute Table

***Access:*** *From the **Icon Subviews** menu for the BGP4_App Application icon, select **Path Attribute Table**.*

The BGP4 Received Path Attribute Table contains information about paths to destination networks received by all BGP peers.

**Peer**
The IP address of the peer where the path information was learned.

**Ip Prefix Len**
Length in bits of the IP address prefix in the Network Layer Reachability Information field.

**Ip Addr Prefix**
An IP address prefix in the Network Layer Reachability Information field.

**Origin**
The ultimate origin of the path information.

**ASPath Segment**
The sequence of AS path segments.

**Next Hop**
The address of the border router that should be used for the destination network.

**Multi Exit Disc**
This metric is used to discriminate between multiple exit points to an adjacent autonomous system.

**Local Pref**
The originating BGP4 speaker's degree of preference for an advertised route.

**Atomic Aggregate**
Determines if the local system has selected a less specific route without selecting a more specific route.

**Aggregator AS**
The AS number of the last BGP4 speaker that performed route aggregation.

**Aggregator Addr**
The IP address of the last BGP4 speaker that performed route aggregation.

**Calc Local Pref**
The degree of preference calculated by the receiving BGP4 speaker for an advertised route.

**Best**
Indicates if this route was chosen as the best BGP4 route.

# Novell Routing Application

This application (CiscoNovellApp) has three menu options. The **Detail** selection provides access to pie charts that display standard Packet Breakdown, Error Breakdown, and Discard Breakdown information. The **SAP/IPX** selection opens a submenu that accesses the following views:

- *Novell Service Advertisement Protocol (SAP) View* (Page 36)
- *Novell Internet Packet Exchange (IPX) View* (Page 37)

## Novell Service Advertisement Protocol (SAP) View

***Access:*** *From the **Icon Subviews** menu for the CiscoNovellApp Application icon, select **SAP/IPX > SAP Chart**.*

The view displays a color-coded pie chart of the following Novell SAP statistics:

- SAP Request Packets Transmitted
- SAP Reply Packets Transmitted
- SAP Request Packets Received
- SAP Reply Packets Received

# Novell Internet Packet Exchange (IPX) View

***Access:*** *From the **Icon Subviews** menu for the CiscoNovellApp Application icon, select **SAP/IPX > IPX Chart**.*

This view includes the Check Point Accounting table, Accounting table, and additional Check Point Accounting and IPX Accounting information described below.

## Check Point Information

This section of the Novell (IPX) view provides the following information.

### Check Point
The check point for the IPX accounting database. This MIB variable must be read and then set with the same value for the check point to succeed. The value read and then set will be incremented after a successful set request.

### Check Point Age
The age of the data in the IPX checkpoint matrix.

## IPX Accounting Information

This section of the Novell (IPX) view provides the following information:

### Threshold
The threshold of IPX accounting records in use before IPX traffic will be unaccounted.

### Age
The age of the data in the IPX data matrix.

### Lost Bytes
The total bytes of lost IPX packets.

### Lost Packets
The lost IPX packets due to memory limitations.

## Check Point Accounting Table

The list of IPX check point accounting entries. The fields for this table are described below.

### Source Address
The IPX Source address for host traffic matrix.

### Destination Address
The IPX Destination address for host traffic matrix.

### Number Packets
The number of IPX packets sent from source to destination.

### Number Bytes
The total number of bytes in IPX packets from source to destination.

### Accounting Table

This table displays the list of IPX accounting entries. The fields in the Accounting Table are described below.

#### Source Address

The IPX Source address for host in the checkpoint traffic matrix.

#### Destination Address

The IPX Destination address for host in the checkpoint traffic matrix.

#### Number Packets

The number of IPX packets sent from source to destination in the checkpoint matrix.

#### Number Bytes

The total number of bytes in IPX packets from source to destination in the checkpoint matrix.

## Vines Routing Application

This application (CiscoVinesApp) has six menu options. The **Detail** selection provides access to pie charts that display standard Packet Breakdown, Error Breakdown, and Discard Breakdown information. The **Vines Specifics** selection opens a submenu that accesses the following views:

- *Vines Routing Echo View* (Page 38)
- *Vines Routing ICP View* (Page 39)
- *Vines Broadcast Detail View* (Page 39)
- *Vines Rx View* (Page 40)
- *Vines Tx View* (Page 41)

## Vines Routing Echo View

***Access:*** *From the **Icon Subviews** menu for the CiscoVinesApp Application icon, select **Vines Specifics > Echos**.*

This view displays a color-coded pie chart displaying a breakdown of Vines Echo statistics. Table 4 provides definitions for the statistics presented by the pie chart.

**Table 4: Vines Echo Statistics**

| Statistic | Definition |
|---|---|
| MAC In | The total number of Vines MAC level Echo packets received. |
| MAC Out | MAC level Echo packets transmitted. |
| Echo In | The total number of Vines Echo packets received. |
| Echo Out | The total number of Vines Echo packets transmitted. |

## Vines Routing ICP View

***Access:*** *From the **Icon Subviews** menu for the CiscoVinesApp Application icon, select **Vines Specifics > ICP**.*

This view displays a color-coded pie chart of Vines Interprocess Communications Protocol (ICP) statistics. Table 5 provides definitions for the statistics presented by the pie chart.

**Table 5: Vines ICP Statistics**

| Statistic | Definition |
|---|---|
| ICP In | The total number of Vines ICP packets received. |
| ICP Out | The total number of Vines ICP packets transmitted. |
| Metric Out | The total number of Vines ICP Metric Notification packets transmitted. |

## Vines Broadcast Detail View

***Access:*** *From the **Icon Subviews** menu for the CiscoVinesApp Application icon, select **Vines Specifics > Broadcasts**.*

This view displays a color-coded pie chart of Vines Broadcast statistics. Table 6 provides definitions for the statistics presented by the pie chart.

**Table 6: Vines Broadcast Statistics**

| Statistic | Definition |
|---|---|
| Forward | The total number of Vines broadcast packets forwarded. |
| Received | The total number of Vines broadcast packets received. |
| Transmitted | The total number of Vines broadcast packets transmitted. |
| Not LAN | The total number of Vines broadcast packets not forwarded to all interfaces because the LAN ONLY bit was set. |
| Not Forward | The total number of Vines broadcast packets not forwarded to all interfaces because the OVER 4800 BPS bit was set. |
| No Charge | The total number of Vines broadcast packets not forwarded to all interfaces because the NO CHARGES bit was set. |

# Vines Rx View

***Access:*** *From the **Icon Subviews** menu for the CiscoVinesApp Application icon, select **Vines Specifics > Rx Table**.*

This view provides the following information.

### Forwarded
The total number of incoming Vines packets forwarded to another interface.

### Format Error
The total number of incoming Vines packets containing header errors.

### Local Destination
The total number of incoming Vines packets destined for this router.

### Encapsulation Type
The Vines protocol default encapsulation type.

### Echo Count
The total number of incoming IPC Echo messages.

## Vines Tx View

***Access:*** *From the **Icon Subviews** menu for the CiscoVinesApp Application icon, select **Vines Specifics > Tx Table**.*

This view provides the following information.

### Forwarded
The total number of outgoing Vines packets forwarded to another interface.

### Proxy Count
The total number of Proxy packets sent by this interface.

### Unicasts
The total number of unicast packets generated by this interface.

### IPC Count
The total number of IPC output messages sent by this interface.

### IPC Error Count
The total number of IPC Error messages sent by this interface.

### Broadcasts
The total number of broadcast packets generated by this interface.

### B-casts Forwarded
The number of broadcast packets forwarded from another interface.

## XNS Routing Application

This application (CiscoXNSApp) has two menu options that provide access to pie charts that display XNS statistics. Table 7 provides definitions for the statistics presented by the pie charts available for the **Echos** selection. The **Detail** selection provides access to pie charts that display standard Packet Breakdown, Error Breakdown, and Discard Breakdown information.

**Table 7: XNS Echo Statistics**

| Statistic | Definition |
|---|---|
| Replies Rec | The total number of XNS Echo reply packets received. |
| Replies Sent | The total number of XNS Echo reply packets transmitted. |
| Request Rec | The total number of XNS Echo request packets received. |
| Request Out | The total number of XNS Echo request packets transmitted. |

# Cisco BSTUN Application

This application (CiscoBSTUNApp) has three menu options that provide access to the following views:

- *BSTUN Groups View* (Page 42)
- *BSTUN Ports View* (Page 43)
- *BSTUN Routes View* (Page 43)

These views provide configuration and operational information on the blocked tunneling implementation.

## BSTUN Groups View

***Access:*** *From the **Icon Subviews** menu for the CiscoBSTUNApp Application icon, select **BSTUN Groups**.*

This view identifies the group number and protocol type that Cisco A and Cisco B use to route BSC (Binary Synchronous Communication) traffic over the IP network. The group number must be the same in Cisco A and Cisco B to route traffic from one router to the other.

The following information is available from this view.

### Index
The configured BSTUN (Block Serial Tunneling) group number. The significance of this number is that it must match the BSTUN Group number configured in the router at the other end of the BSTUN tunnel.

### Type
The protocol type for this BSTUN group.

### Local Ack
Indicates whether the BSTUN connection is locally acknowledged (True) or not locally acknowledged (False).

### Unroutable Transmit
The number of unroutable frames received by this group from the remote partner. They were unroutable because the address was not recognized; that is, there is no BSTUN route command configured for this address. This indicates that the configuration in this router is incompatible with the peer router.

### Unroutable Receive
Count of frames received from a serial interface with an unsupported poll address. Note that there may be several ports configured within this BSTUN group; a non-zero value in this field indicates that at least one of these ports is receiving frames for which there are no BSTUN route commands configured. This indicates that the configuration in this router is incompatible with the configuration in at least one of the attached devices.

## BSTUN Ports View

***Access:*** *From the **Icon Subviews** menu for the CiscoBSTUNApp Application icon, select **BSTUN Ports**.*

This view identifies the serial interface to the BSC line for which the router is providing serial tunneling. It also identifies the BSTUN group that the interface is in and the default routing for unrecognized BSC addresses.

The following information is available from this view.

### Group
The group number to which the BSTUN port belongs. Frames will only be routed to other ports (on this or another router) in the same BSTUN group.

### Default Peer Type
The type of identification of the remote default partner.

### Default Peer IP
The IP address of the remote default BSTUN partner, for unrecognized addresses.

## BSTUN Routes View

***Access:*** *From the **Icon Subviews** menu for the CiscoBSTUNApp Application icon, select **BSTUN Routes**.*

This view displays an entry for each address device for routing within the BSTUN group and an entry for default routing if the “bstun route all” command is configured. The following information is available for this view.

### Group
The index of the BSTUN Group owning this station.

### Address
The poll address of the station. A value of “256” indicates the presence of the ALL parameter on the STUN ROUTE command, which is the route for all unrecognized addresses.

### Type
The type of identification of the remote partner.

### IP
The IP address of the remote BSTUN partner.

### Priority
The priority with which this station’s traffic will be routed across the network.

### Peer State
The state of the peer connection through the BSTUN tunnel.

### Rx Packets
Count of frames received from the serial interface with this station's address.

### Tx Packets
Count of frames transmitted at the serial interface with this station's address.

### Rx Bytes
Count of bytes received from the serial interface with this station's address.

### Tx Bytes
Count of bytes transmitted at the serial interface with this station's address.

## Cisco STUN Application

This application (CiscoSTUNApp) has three menu options that provide access to the following views. These views provide configuration and operational information on the blocked tunneling implementation.


- *STUN Group View* (Page 44)
- *STUN Port View* (Page 45)
- *STUN Route View* (Page 45)


## STUN Group View

***Access:*** *From the **Icon Subviews** menu for the CiscoSTUNApp Application icon, select **STUN Group Table**.*

This view identifies the STUN (Serial Tunneling) group number and protocol type that Cisco A and Cisco B use to route SDLC traffic over the IP network. The table contains an entry for each STUN group defined on the router.

### Group Index
The configured STUN group number.

### Protocol Type
The protocol type for this STUN group.

### STUN IP Address
The configured IP address used for all serial tunnelling in this router.

## STUN Port View

***Access:*** *From the **Icon Subviews** menu for the CiscoSTUNApp Application icon, select **STUN Port Table**.*

This view identifies the serial interface to the SDLC line for which the router is providing serial tunneling. It also identifies the STUN group that the interface is in and the default routing for unrecognized SDLC addresses.

### Group Index
The group number to which the STUN port belongs. Frames will only be routed to other ports (on this or another router) in the same STUN group.

### Default Peer Type
The type of identification of the default partner for unrecognized addresses.

### Default Peer IP
The IP address of the remote default STUN partner, for unrecognized addresses.

### Default Peer Serial IF
If the STUN Route Type is “serial” then this is the serial interface index of the point-to-point link to the remote partner; if STUN Route Type is “serialDirect” then the partner is in the local STUN; if STUN Route Type is “ip” then this field is “0.”

## STUN Route View

***Access:*** *From the **Icon Subviews** menu for the CiscoSTUNApp Application icon, select **STUN Route Table**.*

This view displays a table with information about specific Synchronous Data Link Control (SDLC) addresses. There is one table entry for each SDLC address configured by the STUN ROUTE command.

### Station Addr
The poll address of the station. The variable “256” indicates the ALL parameter on the STUN Route command, which is the route for all unrecognized addresses.

### Type
The type of identification of the remote partner.

### Remote IP
The IP address of the remote STUN partner.

### Serial IF
The local interface index to the remote partner.

### Priority
The priority with which this station’s traffic will be routed across the network.

### Peer State
The state of the peer connection through the STUN tunnel.

**Local Ack**
Indicates if the STUN connection is locally acknowledged.

**Rx Packets**
Count of frames received from the serial interface with this station's address.

**Tx Packets**
Count of frames transmitted at the serial interface with this station's address.

**Rx Bytes**
Count of bytes received from the serial interface with this station's address.

**Tx Bytes**
Count of bytes transmitted at the serial interface with this station's address.



# Optional Applications

The following device-specific applications supported by the MC3810 devices are described in this section:


- *Cisco Chassis Application* (Page 47)
- *Cisco Modem Application* (Page 49)
- *Cisco Flash Application* (Page 58)
- *Cisco Ping Application* (Page 62)
- *Cisco Queue Application* (Page 64)
- *ATM Client Application* (Page 66)
- *EnvMon Application* (Page 68)
- *Discovery Application* (Page 70)
- *Cisco RFC1317 Async Application* (Page 74)
- *Cisco Terminal Server Application* (Page 74)
- *Cisco Memory Pool Application* (Page 77)
- *Cisco Frame Relay Application* (Page 78)

# Cisco Chassis Application

This application (CiscoChasApp) has two menu options that provide access to the following views.


- *Cisco Chassis Card View* (Page 47)
- *Cisco Chassis General Information View* (Page 47)


## Cisco Chassis Card View

***Access:*** *From the **Icon Subviews** menu for the CiscoChasApp Application icon, select **Card Information**.*

This view provides information on the cards contained in the chassis.

### Slot

The slot number in which this card is installed. If the slot number is not applicable or not determinable, this field will display "-1."

### Type

The functional type of the card installed in this slot.

### Description

A textual description of this card.

### Software Ver.

The version number of the firmware installed on this card. If no version number is available, this field will remain empty.

### Hardware Ver.

The hardware revision level of this card. If no revision level is available, this field will remain empty.

### Serial No.

The serial number of this card. If no serial number is available, this field will contain a zero.

## Cisco Chassis General Information View

***Access:*** *From the **Icon Subviews** menu for the CiscoChasApp Application icon, select **General**.*

This view displays information on the chassis in which the router is installed. This view is divided into the three sections described below.

### Chassis Information

This section of the Chassis General Information view provides the following physical information about the chassis.

### Hardware Revision Level

The version number of the chassis hardware. If the version number is not available, this field will remain empty.

### Chassis Type

The type of chassis. Possible chassis types are: `Unknown, Multibus, Agsplus, Igs, c2000,`

c3000, c4000, c7000, cs-500, c7010, c2500, and c4500.

**Chassis ID/Serial No.**
A unique identifier for this chassis. The default value is the serial number of the chassis. If no serial number is available and no alternative ID has been set for the chassis, this field will remain empty.

**Number of Chassis Slots**
The number of slots in this chassis model.

## ROM Information

This section of the Chassis General Information view provides the following information about the ROM installed in the chassis:

**ROM Monitor Version**
The version number of the ROM monitor.

**ROM Software Version**
The version number of the ROM system software. If no version number is available, this field will remain empty.

**Config Register**
The current value of the configuration register.

## RAM Information

This section of the Chassis General Information view provides the following information about the RAM installed in the chassis:

**System CPU RAM (bytes)**
The amount of RAM available to the CPU, in bytes.

**Non-volatile RAM Used (bytes)**
The amount of non-volatile configuration memory in use, in bytes.

**Non-volatile RAM Size (bytes)**
The total size, in bytes, of non-volatile configuration memory.

# Cisco Modem Application

This application (CiscoModemApp) has five menu options that provide access to the following views.


- *Modem System Information View* (Page 49)
- *Modem Line Status Table View* (Page 50)
- *Modem Line Configuration Table View* (Page 54)
- *Modem Line Statistics Table View* (Page 56)
- *Modem Line Speed Statistics Table View* (Page 57)


## Modem System Information View

***Access:*** *From the* ***Icon Subviews*** *menu for the CiscoModemApp Application icon, select* ***System Info.***

### Installed Modem

The actual number of modems that are currently installed within this system.

### Configured Group

The actual number of modem groups that are currently configured within this system.

### Watchdog Time

A passive software watchdog timer value will be used to recover a modem that enters into an unexpected state and hangs. When this watchdog timer times out, the modem associated Call Processing state will be set back to "IDLE," all related Time Division Multiplexing (TDM) paths will be restored to default configurations, and all call processing related actions will stop for the modem.

### Status Poll Time

The ideal time interval between modem status polling via the out-of-band management port.

### Max Retries

A reply event is expected to be received for every message sent to the modem through the out-of-band management port. If an expected reply event is not received, the message will be sent to the modem again. This object specifies the maximum number of retries that will be executed.

### Modems In Use

The number of modems in the system that are in the following states: `connected`, `offHook`, `loopback`, or `downloadFirmware`.

### Modems Available

The number of modems in the system that are in the onHook state, that is, they are ready to accept a call.

### Modems Unavailable

The number of modems in the system that cannot accept calls. These modems are in a state other

than the following: `connected`, `offHook`, `loopback`, or `downloadFirmware`.

### Modems Offline
The number of modems in the system that have been held administratively offline.

### Modems Dead
The number of modems in the system with the state equal to `bad` or `downloadFirmwareFailed`.

## Modem Line Status Table View

***Access:*** *From the **Icon Subviews** menu for the CiscoModemApp Application icon, select **Line Status Table.***

### Interface
The interface to which this modem is connected.

### Group
The modem group number that the modem may be in.

### Manufacturer ID
A textual description to identify the modem, including the manufacturer's name and type of modem.

### Product Details
A textual description of the modem, including hardware revision number, firmware revision number, feature set, and—optionally— its serial number.

### Manageable
The Manageable modem allows access through the out of band management port in which the modem statistic data can be retrieved, and the Direct Connect session can be used to provide the test and debugging ability. This object indicates whether this modem is a Manageable modem.

### State
Indicates the current state of the modem. The meaning of each state code is explained in Table 8.

**Table 8: Modem States**

| State | Meaning |
|---|---|
| unknown | The current state of the modem is unknown. |
| onHook | The modem is in a state similar to hanging up a telephone receiver. The call cannot enter a connected state when the modem is onHook. |
| offHook | The modem is in a state similar to picking up a telephone receiver to dial or answer a call. |
| connected | The modem is in a state where it can transmit or receive data over the communications line. |
| busiedOut | The modem is busied out (i.e., taken out of service) and cannot make outgoing calls or receive incoming calls. |

**Table 8: Modem States (Continued)**

| State | Meaning |
|---|---|
| disabled | The modem is in a reset state and non-functional. This state can be set and cleared via cmHoldReset. |
| bad | The modem is suspected or proven to be bad. The operator can take the modem out of service and mark the modem as “bad” via cmBad. |
| loopback | The modem is in a state where it is currently running back-to-back loopback testing. |
| downloadFirmware | The modem is in a state where it is currently downloading the firmware. |
| downloadFirmwareFailed | The modem is not operational because the downloading of firmware to it has failed. |

### Call Direction

The modem can be used either as an incoming call or outgoing call. This object specifies the direction of the current or previous call.

### Disconnect Reason

Indicates the reason that the last connection or call attempt disconnected. The meaning of each reason code is explained in Table 9.

**Table 9: Disconnect Reasons**

| Reason Code | Meaning |
|---|---|
| unknown | The failure reason is unknown or there has been no previous call. |
| lostCarrier | The call was disconnected because of the loss of a carrier. |
| noCarrier | The dial out attempt has failed because the modem detects no carrier. |
| noDialTone | The dial out attempt has failed because modem failed to detect a dial tone. |
| busy | The call attempt failed because the modem detected a busy signal. |
| modemWatchdogTimeout | The modem internal watchdog timer has expired. |
| dtrDrop | DTR has been turned off while the modem is disconnected on DTR drop. |

**Table 9: Disconnect Reasons (Continued)**

| Reason Code | Meaning |
|---|---|
| userHangup | Normal disconnect where the user hangs up call. |
| compressionProblem | The call is disconnected due to a problem detected during compression in the modem. |
| retrainFailure | The modem did not successfully train and reach data mode on the previous connections. |
| remoteLinkDisconnect | The remote link disconnected the connection. |
| abort | The call was aborted. |
| inactivityTimeout | The modem automatically hangs up because data is not sent or received within the inactivity time out. |
| dialStringError | The dialed phone number is invalid. |
| linkFailure | The modem detects a link failure. |
| modulationError | The modem detects a modulation error. |
| dialTimeout | The modem times out while attempting to dial. |

**Table 9: Disconnect Reasons (Continued)**

| Reason Code | Meaning |
|---|---|
| remoteHangup | The remote side hangs up the connection. |
| trainupFailure | Failure to train up with a remote peer. |
| fallbackTerminate | User has EC fallback set to disconnect. |
| excessiveEC | Link loss due to excessive EC retransmissions. |
| hostDrop | Host initiated link drop. |
| terminate | Lost Carrier Microcom HDMS product relating to password security issues. |
| autoLogonError | An autologon sequence did not complete successfully. |
| ccpNotSeen | The Credit Card Prompt was not detected. |

**Table 9: Disconnect Reasons (Continued)**

| Reason Code | Meaning |
|---|---|
| callbackFailed | A switched line dialback occurred due to a leased line connection failure, thus the switched line connection also failed and a connection can still not be made on the leased line. |
| blacklist | In countries that support blacklisting, an attempt was made to go off hook with a null dial string (ATD). |
| mnp10ProtocolError | MNP10 Protocol Error |
| lapmProtocolError | LAPM Protocol Error |
| faxClass2Error | Fax Class 2 Error |

### Call Duration

This object specifies the call duration of the current or previous call.

### Call Phone Number

The dialed outgoing telephone number of the current or previous call.

### Caller ID

The incoming caller identification of the current or previous call.

### Modulation Scheme Used
The modem modulation scheme used in the current or previous call. This object exists only for modems which have the cmManageable object set to "true."

### Protocol Used
The modem protocol used in the current or previous call. This object exists only for modems that have the cmManageable object set to "true."

### TXRate
The modem transmit rate of the current or previous call in bits per second. This object exists only for modems that have the cmManageable object set to "true."

### RXRate
The modem receive rate of the current or previous call in bits per second. This object exists only for modems that have the cmManageable object set to "true."

### TXAnalog Signal Level
The modem transmit analog signal level in the current or previous call. This object exists only for modems that have the cmManageable object set to "true."

### RXAnalog Signal Level
The modem receive analog signal level in the current or previous call. This object exists only for modems that have the cmManageable object set to "true."

## Modem Line Configuration Table View

***Access:*** *From the **Icon Subviews** menu for the CiscoModemApp Application icon, select **Line Configuration Table.***

This table shows objects that describe configuration information for the modem.

### Index
Sequential number identifying a particular modem.

### AT Mode Permit
Direct Connect session is used for testing and debugging purposes by using the modem AT commands through the out-of-band management port when cmManageable is set to "true." This object specifies whether the Direct Connect session is permitted to be used at this modem. If cmManageable is "true" (1), Direct Connect session via the out of band port is allowed; if "false" (2), Direct Connect session is not allowed for the modem.

### Status Polling
Modem status and events can be polled through the out of band management port when the cmManageable is set to "true." This object

specifies whether this status polling feature is enabled at this modem. If cmManageable is “true” (1), status polling will occur for the modem; if “false” (2) no status polling will occur.

### Busy Out Request

This object is used to put the modem out of service, i.e. modem cannot make calls or answer calls. If the modem to be busyout is handling a call, the busyout action will be taken after the current call is disconnected. After the modem is in the busyout state, the following commands can be applied to those modems: reset, bad modem, download modem firmware, etc. This is called “nice” or “graceful” busyout. The value of “true” (1) indicates the busyout request has been issued to the modem, but the busyout could be pending. The management entity needs to query the cmState to see if the modem is successfully busied out. The value of “false” (2) indicates the modem has not been given the busyout command.

### Shutdown

This object is used to put the modem out of service — i.e., modem cannot make calls or answer calls. This is a “hard” busyout command to bring the modem out of service immediately without waiting for the call to be ended normally. After the modem is shut down, the following commands can be applied to those modems: reset, bad modem, download modem firmware, etc. The value of “true” (1) indicates the hard busyout has been issued to the modem. The value of “false” (2) indicates the modem has not been given a hard busyout command.

### Hold Reset

A command hold-reset will put the state of modem into reset mode until an inverse command is given to bring the modem out of RESET mode. During the period of reset mode, the modem cannot be used. This object is only valid when cmState is onHook, busiedOut, or disabled. The value of “true” (1) attempts to put the modem in reset mode, and the value of “false” (2) takes the modem out of reset.

### Bad

This object can hold the modem out of service and marks the modem as suspected or proven to be bad. During the router start-up initialization sequence, modem back-to-back tests will test modems and mark those modems failing tests as bad modems. The management entity also can use this command to lock out the suspect modem or unlock the modem to further debug or test. This object is only valid when cmState is onHook or busiedOut. The value of “true” (1) indicates the modem is suspected to be bad and its state is set to bad. The value of “false” (2) indicates the

modem has not been suspected to be bad or has been remarked as good.

## Modem Line Statistics Table View

***Access:*** *From the **Icon Subviews** menu for the CiscoModemApp Application icon, select **Line Statistics Table**.*

This table contains objects that describe the status of the modem.

### Index
Sequential number identifying a single modem.

### Ring No Answers
The number of calls where ringing was detected but the call was not answered at this modem.

### In Connect Failures
The number of incoming connection requests that this modem answered but for which it could not train with the other Data Communications Equipment (DCE). This object exists only for modems that have the cmManageable object set to “true.”

### In Connect Completions
The number of incoming connection requests that this modem answered and successfully trained with the other DCE. This object exists only for modems that have the cmManageable object set to “true.”

### Out Connect Failures
The number of outgoing calls from this modem that successfully went off hook and dialed, but for which it could not train with the other DCE. This object exists only for modems that have the cmManageable object set to “true.”

### Out Connect Completions
The number of outgoing calls from this modem that resulted in successfully training with the other DCE. This object exists only for modems that have the cmManageable object set to “true.”

### Failed Dial Attempts
The number of call attempts that failed because the modem did not go off hook, or because there was no dial tone.

### No Dial Tones
The number of times the dial tone was expected but was not received. This object exists only for modems that have the cmManageable object set to “true.”

### Dial Timeouts
The number of times the dial time-out occurred. This object exists only for modems that have the cmManageable object set to “true.”

### Watchdog Timeout
The number of times the Call Processing watchdog timer has expired.

### 2400 Or Less Connections
The number of connections initially established at a modulation speed of 2400 bits per second or less. This object exists only for modems that have the cmManageable object set to “true.”

### 2400 To 14400 Connections
The number of connections initially established at a modulation speed of greater than 2400 bits per second and less than 14400 bits per second. This object exists only for modems that have the cmManageable object set to “true.”

### More Than 14400 Connections
The number of connections initially established at a modulation speed of greater than 14400 bits per second. This object exists only for modems that have the cmManageable object set to “true.”

### No Carriers
The number of times the disconnect reason is no carrier. This object exists only for modems that have the cmManageable object set to “true.”

### Link Failures
The number of times that the disconnect reason is link failure. The object exists only for modems that have the cmManageable object set to “true.”

### Protocol Errors
The number of times that the out of band protocol error occurred. This object exists only for modems that have the cmManageable object set to “true.”

### Polling Timeouts
The number of times that the out of band protocol time-out error occurred. This object exists only for modems that have the cmManageable object set to “true.”

## Modem Line Speed Statistics Table View

***Access:*** *From the **Icon Subviews** menu for the CiscoModemApp Application icon, select **Line Speed Stats Table**.*

This table displays a collection of objects that describe the initial modem line speeds and connections.

### Index
Sequential number identifying a single modem.

### Line Connections
The number of connections initially established at a given modulation speed. An instance of this object will only be present for those speeds where one or more connections have occurred.

### Tx Line Connections
The number of Transmit connections initially established at a given modulation speed. An instance of this object will only be present for those speeds where one or more connections have occurred.

### Rx Line Connections
The number of Receive connections initially established at a given modulation speed. An instance of this object will only be present for those speeds where one or more connections have occurred.

# Cisco Flash Application

This application (CiscoFlashApp) supports the flash memory used by the Cisco MC3810. It has eight options that provide access to the following views:


- *Cisco Flash Configuration View* (Page 58)
- *Flash Device Chip Properties Table View* (Page 59)
- *Flash Copy Operations Table View* (Page 60)
- *Flash Device Properties Table View* (Page 60)
- *Flash File Properties Table View* (Page 61)
- *Flash Miscellaneous Operations Table View* (Page 61)
- *Flash Device Partition Properties Table View* (Page 61)
- *Flash Partitioning Operations Table View* (Page 62)


## Cisco Flash Configuration View

***Access:*** *From the **Icon Subviews** menu for the CiscoFlashApp Application icon, select **Flash Configuration**.*

This view provides the following information.

### Flash Size (Bytes)
Total size, in bytes, of flash memory.

### Available (Bytes)
Unused size, in bytes, of flash memory.

### Flash write
The current write permission is “Disabled” or “Enabled.”

## Flash Directory

This table within the Flash Configuration view, provides the following information.

### Name
The flash device name.

### Size
The total size of the flash device.

### Status
The status of the flash device.

There are also seven buttons that access the additional Flash views or you can access these views from the Icon Subviews menu for the CiscoFlashApp Application. The buttons are: Copy Operations, Misc Operations, Device Properties, Chip Properties, Partition Properties, Partitioning Operations, and File Properties.

## Flash Device Chip Properties Table View

***Access:*** *From the **Icon Subviews** menu for the CiscoFlashApp Application icon, select **Chip Properties**.*

This view displays the following flash device chip information for each initialized flash device.

### Description
The flash chip name corresponding to the chip code.

### Write Retries
A cumulative count of write retries done on this chip.

### Erase Retries
A cumulative count of erase retries done on this chip.

# Flash Copy Operations Table View

***Access:*** *From the **Icon Subviews** menu for the CiscoFlashApp Application icon, select **Copy Operations**.*

This view displays the following information.

**Command**
The copy command to be executed.

**Protocol**
The protocol to be used for any copy. Default is `tftp`.

**Server Address**
The server address for any copy. Default is `255.255.255.255`.

**Source Name**
The source file name, either flash or on a server.

**Destination Address**
The destination address for any copy.

**Remote User**
The remote user name for copy through rcp protocol.

**Copy Status**
The status of the specified copy operation.

**Notify On Completion**
Whether a notification should be generated on the completion of the copy operation.

**Entry Status**
The status of this table entry.

# Flash Device Properties Table View

***Access:*** *From the **Icon Subviews** menu for the CiscoFlashApp Application icon, select **Device Properties**.*

This view displays the following information.

**Name**
The Flash device name.

**Partitions**
Number of partitions present.

**Descriptions**
System Flash (primary) and Boot Flash (secondary).

**Controller**
The card that controls Flash read/write/erase.

**Card**
Index for the card in the card table.

**Jumper**
The state of the jumper that controls the programming voltage to the Flash device. Possible values include: “unknown”(3) where a programming jumper is not present or not required or, “Installed”(1), or “notInstalled”(2)

where the programming jumper state can be read back via a hardware register.

**Init Time**
The time (system time) the device was initialized.

## Flash File Properties Table View

***Access:*** *From the **Icon Subviews** menu for the CiscoFlashApp Application icon, select **File Properties**.*

This view displays the following information for the files in a flash partition.

**Name**
The name for the file specified by the user copying in the file.

**Size**
The size of the file in bytes.

**Status**
The status of the file.

## Flash Miscellaneous Operations Table View

*Access: From the **Icon Subviews** menu for the CiscoFlashApp Application icon, select **Miscellaneous Operations**.*

This view displays the following information.

**Command**
The command to be executed.

**Destination**
The destination file.

**Status**
The status of the specified operation.

**Notify On Completion**
Whether a notification should be generated on the completion of the copy operation.

**Entry Status**
The status of this table entry.

**Time**
The time taken for the operation.

## Flash Device Partition Properties Table View

***Access:*** *From the **Icon Subviews** menu for the CiscoFlashApp Application icon, select **Partition Properties**.*

This view displays the following information.

**Name**
The name for this partition used by the system.

**Start Chip**
The chip sequence number for the first chip in the partition.

**End Chip**
The chip sequence number for the last chip in the partition.

**Size**
The flash partition size.

**File Count**
The number of files in the partition.

**Checksum Algorithm**
The identifier for the checksum method used by the file system. When a file system writes a file to flash, it checksums the data written.

## Flash Partitioning Operations Table View

***Access:*** *From the **Icon Subviews** menu for the CiscoFlashApp Application icon, select **Partitioning Operations**.*

This view displays the following information.

**Command**
The partitioning command to be executed.

**Destination**
The destination device name.

**Partition Count**
The number of partitions to be created.

**Partition Sizes**
The size of each partition to be created.

**Status**
The status of the specified partitioning process.

**Notify On Completion**
Whether a notification should be generated on the completion of the copy operation.

**Entry Status**
The status of this table entry.

**Time**
The time taken for the operation.

# Cisco Ping Application

This application (CiscoPingApp) provides access to the Ping Request Table View.

## Ping Request Table View

***Access:*** *From the **Icon Subviews** menu for the CiscoPingApp Application icon, select **Ping Request Entry Table**.*

This view allows you to update the ping request list for this device. The following information is available for this view:

**Owner**
The user who configured this entry.

**Protocol**
The protocol to use once an instance of this object is created e.g., Novell, Apple Talk, Vines, etc.

**Address**
The address of the device to be pinged.

**Status**
The status of this table entry. Possible states are: `active`, `notInService`, `notReady`, `createAndGo`, `createAndWait`, and `destroy`.

**Pkt Cnt**
Specifies the number of ping packets to send to the target device in this sequence.

**Pkt Sz**
Specifies the size of ping packets to send to the target device in this sequence.

**Pkt Timeout**
Specifies the amount of time to wait for a response to transmitted packet before declaring the packet dropped.

**Delay**
Specifies the minimum amount of time to wait before sending the next packet in a sequence after receiving a response or declaring a timeout for a previous packet.

**Trap On**
Specifies whether or not a ciscoPingCompletion trap should be issued on completion of the sequence of pings.

**Pkts Sent**
The number of ping packets that have been sent to the target.

**Pkts Rcvd**
The number of ping packets that have been received from the target in this sequence.

**Min RTT**
The minimum round trip time in milliseconds of all the packets that have been sent in this sequence.

**Avg RTT**
The average round trip time in milliseconds of all the packets that have been sent in this sequence.

**Max RTT**
The maximum round trip time in milliseconds of all the packets that have been sent in this sequence.

**Completed**
Indicates (true) that all the packets in this sequence have been either responded to or timed out.

**Add an Entry**

This button opens the Add Ping Request dialog box. Enter the following information and click the **Add Request** button to add an entry to the Ping Request Entry Table:

- Address
- Owner
- Packet Count
- Packet Size
- Packet Timeout
- Delay
- Protocol
- Trap on Completion

# Cisco Queue Application

This application (CiscoQueueApp) has three menu options that provide access to the information used to manage interface queuing within this device.


- *Queue Interface View* (Page 64)
- *Queue Statistics View* (Page 65)
- *Queue Rotation Interface View* (Page 65)


## Queue Interface View

***Access:*** *From the **Icon Subviews** menu for the CiscoQueueApp Application icon, select **Queue Interface**.*

This view provides the following information on the queues for a particular Cisco interface.

### IF
The IF index for this interface.

### Type
The type of queuing used in the hold queue.

### Maximum Number of Msgs
The maximum number of messages placed in the hardware transmission queue.

### Number of Sub-Queues
The number of sub-queues from which the hold queue is built.

## Queue Statistics View

***Access:*** *From the **Icon Subviews** menu for the CiscoQueueApp Application icon, select **Queue Statistics**.*

This view provides the following statistical information on the queues for a particular Cisco interface.

**Sub-Queue Attrs**
A list of sub-queue attributes for an interface.

**Number of Msgs**
The number of messages in the sub-queue.

**Maximum Permitted Msgs**
The maximum number of messages permitted in the sub-queue.

**Number of Msgs Discarded**
The number of messages discarded from this queue since restart.

## Queue Rotation Interface View

***Access:*** *From the **Icon Subviews** menu for the CiscoQueueApp Application icon, select **Rotation Interface**.*

This view provides the following information on the rotation of custom queues for a particular Cisco interface.

**Statistics Queue Number**
Custom queuing sub-queue attributes for an interface.

**Number of Transmitted Octets**
The number of octets that may be transmitted from a custom queuing sub-queue before it must yield to another queue.

# ATM Client Application

This application (ATMClientApp) has four menu options that provide access to the following views:


- *VCL Table* (Page 66)
- *ATM Link Modeling Options* (Page 67)


## VCL Table

***Access:*** *From the **Icon Subviews** menu for the ATMClientApp Application icon, select **VCL Table.***

This view opens the ATM Client Application Virtual Channel Link (VCL) view with the following information.

### If Index
An entry in the VCL Table.

### VPI
The Virtual Path Identifier (VPI) value of the VCL.

### VCI
The Virtual Channel Identifier (VCI) value of the VCL.

### Admin Status
This object is implemented only for a VCL that terminates a VCC (i.e., one that is not cross-connected to other VCLs). Its value specifies the desired administrative state (up or down) of the VCL.

### Oper Status
This object indicates the current operational status (up, down, or unknown) of the VCL.

### Last Change
The value of MIB II's System Up Time object at the time this VCL entered its current operational state. If the current state was entered prior to the last re-initialization of the agent, then this object contains a zero value.

### Rcv Descr Index
The value of this object identifies the row in the ATM Traffic Descriptor Table that applies to the receive direction of this VCL.

### Xmit Descr Index
The value of this object identifies the row of the ATM Traffic Descriptor Table that applies to the transmit direction of this VCL.

### AAL Type
The type of AAL used on this VCC. An instance of this object only exists when the local VCL endpoint is also the VCC endpoint, and AAL is in use.

### Transmit Size
The maximum AAL5 CPCS SDU size in octets that is supported on the transmit direction of this VCC. An instance of this object only exists when

the local VCL end-point is also the VCC endpoint, and AAL5 is in use.

### Receive Size
The maximum AAl5 CPCS SDU size in octets that is supported on the receive direction of this VCC. An instance of this object only exists when the local VCL end-point is also the VCC endpoint, and AAL5 is in use.

### Encaps Type
The type of data encapsulation used over the AAL5 SSCS layer. An instance of this object only exists when the local VCL endpoint is also the VCC end-point, and AAL5 is in use.

### Cross Connect Id
This object is implemented only for a VCL that is cross-connected to other VCLs that belong to the same VCC.

### Row Status
This object is used to create, delete, or modify a row in this table. To create a new VCL, this object is initially set to “createAndWait” or “createAndGo.”

### Row Status Procedure
This procedure provides step-by-step instructions to create or remove channel information.

## ATM Link Modeling Options

***Access:*** *From the **Icon Subviews** menu for the ATMClientApp Application icon, select **ATM Link Modeling Options.***

This view provides you with two fields; **Create Link Models** and **Config Interval** and two buttons; **Reconfigure Now** and **Option Explanations**.

Select **Option Explanations** for a brief explanation of **Create Link Models**, **Config Interval**, and **Reconfigure Now**.

# EnvMon Application

This application (CiscoEnvMonApp) has five menu options that provide access to the following views:


- *Enable Notifications* (Page 68)
- *Fan Status* (Page 68)
- *Power Supply Status* (Page 68)
- *Temperature Status* (Page 69)
- *Voltage Status* (Page 69)


## Enable Notifications

***Access:*** *From the **Icon Subviews** menu for the CiscoEnvMonApp Application icon, select **Enable Notifications**.*

This view allows you to enable or disable system notifications.

### Shutdown

This variable indicates whether the system produces the Shutdown Notification.

### Voltage

This variable indicates whether the system produces the Voltage Notification.

### Redundant Supply

This variable indicates whether the system produces the Redundant Supply Notification.

### Temperature

This variable indicates whether the system produces Temperature Notification.

### Fan

This variable indicates whether the system produces the Fan Notifications.

## Fan Status

***Access:*** *From the **Icon Subviews** menu for the CiscoEnvMonApp Application icon, select **Fan Status**.*

This table provides the fan status maintained by the environmental monitor. The **Description** identifies the fan being instrumented and the **State** identifies the current state of the fan being instrumented.

## Power Supply Status

***Access:*** *From the **Icon Subviews** menu for the CiscoEnvMonApp Application icon, select **Power Supply Status**.*

This table provides the power supply status maintained by the environmental monitor card. The **Description** identifies the power supply being instrumented and the **State** identifies the current state of the power supply being instrumented.

## Temperature Status

***Access:*** *From the **Icon Subviews** menu for the CiscoEnvMonApp Application icon, select **Temperature Status**.*

This table provides the ambient temperature status maintained by the environmental monitor.

### Description
The testpoint being instrumented.

### Value
The current measurement of the testpoint being instrumented.

### Threshold
The highest value that the associated instance of the object Status Value may obtain before an emergency shutdown of the managed device is initiated.

### @ Last Shutdown
The value of the associated instance of the object Status Value at the time an emergency shutdown of the managed device was last initiated. This value is stored in non-volatile RAM and is therefore able to survive the shutdown.

### State
The current state of the testpoint being instrumented.

## Voltage Status

***Access:*** *From the **Icon Subviews** menu for the CiscoEnvMonApp Application icon, select **Voltage Status**.*

This table provides the voltage status maintained by the environmental monitor.

### Description
The testpoint being instrumented.

### Value
The current measurement of the testpoint being instrumented.

### Lo Threshold
The lowest value that the associated instance of the object Voltage Status Value may obtain before an emergency shutdown of the managed device is initiated.

### Hi Threshold
The highest value that the associated instance of the object Voltage Status Value may obtain before an emergency shutdown of the managed device is initiated.

### @ Last Shutdown
The value of the associated instance of the object Voltage Status Value at the time an emergency shutdown of the managed device was last initiated. This value is stored in non-volatile RAM and hence is able to survive the shutdown.

### State
The current state of the testpoint being instrumented.

# Discovery Application

This application (CiscoCDPApp) has two menu options that provide access to the following views.


- *Discovery Cache Table View* (Page 70)
- *Interface Discovery Status Table* (Page 71)


## Discovery Cache Table View

***Access:*** *From the **Icon Subviews** menu for the CiscoCDPApp Application icon, select **Cache**.*

This table contains the cached information obtained by receiving Cisco Discovery Protocol (CDP) messages.

### Type
An indication of the type of address contained in the corresponding instance of `cdpCacheAddress`.

### Address
The (first) network-layer address of the device's SNMP-agent as reported in the most recent CDP message.

### Device ID
The Device-ID string as reported in the most recent CDP message. The zero-length string indicates no Device-ID field was reported in the most recent CDP message.

### Device Port
The Port-ID string as reported in the most recent CDP message. This will typically be the value of the ifName object (e.g., 'Ethernet0'.) The zero-length string indicates no Port-ID field was reported in the most recent CDP message.

### Platform
The device's hardware platform as reported in the most recent CDP message. The zero-length string indicates that no Platform field was reported in the most recent CDP message.

### Capabilities
The device's functional capabilities as reported in the most recent CDP message. For the latest set of specific values, see the latest version of the CDP specification. The zero-length string indicates no Capabilities field was reported in the most recent CDP message.

# Interface Discovery Status Table

***Access:*** *From the **Icon Subviews** menu for the CiscoCDPApp Application icon, select **Interfaces.***

This table contains the status of Cisco Discovery Protocol (CDP) on the device's interfaces.

### IF
The interface index value of the local interface.

### Discovery
An indication of whether the Cisco Discovery Protocol is currently running on this interface.

### Group
This object is only relevant to interfaces that are repeater ports on 802.3 repeaters; it indicates the RFC1516 group number of the repeater port that corresponds to this interface.

### Port
This object is only relevant to interfaces that are repeater ports on 802.3 repeaters; it indicates the RFC1516 port number of the repeater port that corresponds to this interface.

### Interval
The interval at which CDP (Cisco Discovery Protocol) messages are to be generated on this interface. The default value is 60 seconds.

### Line Status
This variable indicates the Line Status of the interface. It contains loopback, failure, received alarm and transmitted alarm information. The Line Status is a bit map represented as a sum; therefore, it can represent multiple failures (alarms) and a Loopback State simultaneously. The various bit positions are shown in Table 10.

**Table 10: Line Statuses**

| Bit | Status | Description |
|---|---|---|
| 1 | dsx1NoAlarm | No Alarm Present |
| 2 | dsx1RcvFarEndLOF | Far end LOF (a.k.a., Yellow Alarm |
| 4 | dsx1XmtFarEndLOF | Near end sending LOF Indication |
| 8 | dsx1RcvAIS | Far end sending AIS |
| 16 | dsx1XmtAIS | Near end sending AIS |
| 32 | dsx1LossOfFrame | Near end LOF (a.k.a., Red Alarm) |
| 64 | dsx1LossOfSignal | Near end Loss Of Signal |
| 128 | dsx1LoopbackState | Near end is looped |

**Table 10: Line Statuses (Continued)**

| Bit | Status | Description |
|---|---|---|
| 256 | dsx1T16AIS | E1 TS16 AIS |
| 512 | dsx1RcvFarEndLOMF | Far End Sending TS16 LOMF |
| 1024 | dsx1XmtFarEndLOMF | Near End Sending TS16 LOMF |
| 2048 | dsx1RcvTestCode | Near End detects a test code |
| 4096 | dsx1OtherFailure | Any line status not defined. |

### Signal Mode

The following table (Table 11) describes the signal modes that are available.

**Table 11: Signal Modes**

| Mode | Description |
|---|---|
| none | Indicates that no bits are reserved for signaling on this channel. |
| robbedBit | Indicates that T1 Robbed Bit Signaling is in use. |
| bitOriented | Indicates that E1 Channel Associated Signaling is in use. |
| messageOriented | Indicates that Common Channel Signaling is in use either on channel 16 of an E1 link or channel 24 of a T1. |

### Transmit Clock

The following table (Table 12) describes the sources for the Transmit Clock.

**Table 12: Transmit Clock Sources**

| Code | Description |
|---|---|
| loopTiming | Indicates that the recovered receive clock is used as the transmit clock. |
| localTiming | Indicates that a local clock source is used. |
| throughTiming | Indicates that recovered receive clock from another interface is used as the transmit clock. |

### Facilities Data Link

This bitmap describes the use of the facilities data link, and is the sum of the capabilities as shown in Table 13.

**Table 13: Facilities Data Link Codes**

| Code | Description |
|---|---|
| other | Indicates that a protocol other than the one following is used. |
| dsx1Ansi-T1-403 | Refers to the FDL exchange recommended by ANSI. |
| dsx1Att-54016 | Refers to ESF FDL exchanges. |
| dsx1Fdl-none | Indicates that the device does not use the FDL. |

## Cisco Interface Application

This application (CiscoIfceApp) provides access to the application-specific Configuration view.

To access the Configuration view, select **Configuration** from the **Icon Subviews** menu. The CiscoIfceApp Configuration window opens where you can choose to **Create Interface Applications** and/or Create **Sub Interface Applications**.

# Cisco RFC1317 Async Application

This application (RFC1317AsyncApp) provides access to the RS232 Asynchronous Port Table.

## RS232 Asynchronous Port Table

**Port ID**
A unique value for each port.

**Data Bits**
The port's number of bits in a character.

**Stop Bits**
The port's number of stop bits.

**Parity**
The port's sense of a character parity bit.

**AutoBaud**
A control for the port's ability to automatically sense input speed.

**Error Breakdown - Parity**
Total number of characters with a parity error input from the port since system re-initialization and while the port state was "up" or "test."

**Error Breakdown - Framing**
Total number of characters with a framing error input from the port since system re-initialization and while the port state was "up" or "test."

**Error Breakdown - Overrun**
Total number of characters with an overrun error input from the port since system re-initialization and while the port state was "up" or "test."

# Cisco Terminal Server Application

The Cisco Terminal Server Application (CiscoTSApp) has three menu options that provide access to the following views:

- *Line Configuration View* (Page 74)
- *Cisco Terminal Server Line View* (Page 75)
- *Cisco Terminal Server Session View* (Page 77)

## Line Configuration View

***Access:*** *From the **Icon Subviews** menu for the CiscoTSApp Application icon, select **Line Configuration.***

This view displays the following information on the terminal server lines.

**Lines**
Number of lines.

**Message tty Line**
The tty line to send the message to.

**Message Interval time**
The interval in milliseconds between reissuing message.

### Message Duration
The length of time in milliseconds to reissue message.

### Message Text
The actual message, up to 256 characters.

### Message Temporary Banner
Select to use the message as a temporary banner in addition to the normal banner.

### Message send
The value used to determine what is done after the message is sent.

### Clear tty Line
The last line cleared.

## Cisco Terminal Server Line View

***Access:*** *From the **Icon Subviews** menu for the CiscoTSApp Application icon, select **Line Table.***

This view displays the following information on each terminal server line connected to the Cisco MC3810.

### Status
The current state of this line. Possible states are: "Active" and "Inactive."

### Type
The type of line. Possible types are: `Unknown`, `Console`, `Terminal`, `Line-Printer`, `Virtual-Terminal`, and `Auxiliary`.

### Autobaud
Indicates whether or not the line will autobaud.

### Speed In
The input speed of this line, displayed as a baud rate.

### Speed Out
The output speed of this line, displayed as a baud rate.

### Flow Control
The type of flow control in use on this line. Possible flow control types are: `Unknown`, `None`, `Software-Input`, `Software-Output`,

Software-Both, Hardware-Input, Hardware-Output, and Hardware-Both.

**Modem Control**
The type of modem control in use on this line. Possible modem control types are: Unknown, None, Call-In, Call-Out, CTS-Required, RI-IS-CD, and InOut.

**Location**
The physical location of this line.

**Term Type**
The type of terminal on this line.

**Length in Lines**
Length, in lines, of the terminal screen attached to this line.

**Width in Char**
Width, in characters, of the terminal screen attached to this line.

**Escape Char**
Escape character used to breakout the active sessions.

**Idle Time out**
The amount of idle time allowed on this line before the line times out.

**Session Time out**
The amount of idle time allowed in this session before the session times out.

**Rotary**
The rotary group number the line belongs to.

**# of Connections**
The number of times a connection has been made to or from this line.

**Current Session**
The current number of sessions in use on this line.

**User**
Terminal Access Controller Access Control System (TACACS ) user name, if TACACS is enabled.

**Noise**
Count of garbage characters received when the line is inactive.

**Line Number**
The number (listed in sequential order) for this terminal server line.

**Time Active**
The time, in seconds, since the line was activated.

## Cisco Terminal Server Session View

***Access:*** *From the **Icon Subviews** menu for the CiscoTSApp Application icon, select **Session Table.***

This view displays the Terminal Server (TS) Session Table, which provides information about each terminal server session connected to the Cisco MC3810.

**Type**
Identifies session type as `Pad`, `Stream`, `Rlogin`, `Telnet`, `TCP` and `Unknown`.

**Direction**
The direction of this session. Possible directions are: `Unknown`, `Incoming`, and `Outgoing`.

**Addr**
The remote host address of the session.

**Name**
The remote host name of the session.

**State**
Indicates whether this session is the currently "Active" or "Inactive."

**Idle**
Time in seconds that the session has been idle.

**Line**
The index value that identifies this line.

**Session**
A second index value that identifies this session.

## Cisco Memory Pool Application

This major application provides the following application-specific subview.

- *Cisco Memory Pool Monitor Table View* (Page 77)

## Cisco Memory Pool Monitor Table View

***Access:*** *From the **Icon Subviews** menu for the Cisco_Mem_ Application icon, select **Memory Pool Monitor.***

This table displays memory pool monitoring entries.

**Name**
Displays the name assigned to a memory pool.

**Alternate**
Indicates whether or not this memory pool has an alternate pool configured. Alternate pools are used for fallback when the current pool runs out of memory. If this has a value of zero than there is no alternate.

**Valid**
This indicates whether or not the remaining objects in this entry contain accurate data. If an instance of this object has a false value, the values of this row may contain inaccurate information.

**Used**
Indicates the number of bytes from the memory pool that are currently in use by applications on the managed device.

**Free**
The number of bytes from the memory pool that are currently unused on the managed device.

**Largest Free**
Indicates the largest number of contiguous bytes from the memory pool that are currently unused on the managed device.

# Cisco Frame Relay Application

This application provides specific Frame Relay information that is either excluded by the RFC 1315 or is specific to Cisco products. The following subviews are available:


- *Frame Relay Trap Configuration View* (Page 78)
- *DLCI Connection View* (Page 79)
- *Frame Relay Circuit Table* (Page 79)
- *Frame Relay Data Link Connection Management Table* (Page 80)
- *Frame Relay Error Table* (Page 81)
- *Cisco Frame Relay LMI Table* (Page 82)
- *Cisco Frame Relay Circuit Table* (Page 82)
- *Cisco Frame Relay Ext. Circuit Table* (Page 83)
- *Cisco Frame Relay Map Table* (Page 84)


## Frame Relay Trap Configuration View

This view contains configuration buttons which allow you to reconfigure, suppress, generate or clear alarms. Explanations for the use of these functions is also provided.

## DLCI Connection View

***Access:*** *From the **Icon Subviews** menu for the CiscoFRApp, select **DLCI Connection View**.*

This view contains Data Link Connection Identifier information.

**Local IF .DLCI**
The local interface DLCI.

**Local IP Address**
The IP address of the local port.

**Remote Device**
The remote device identifier.

**Remote IF .DLCI**
The remote interface DLCI.

**Remote IP Address**
The IP address of the remote port.

## Frame Relay Circuit Table

***Access:*** *From the **Icon Subviews** menu for the CiscoFRApp, select **Circuit Table**.*

**Index**
A value that identifies a table entry.

**DLCI**
The Data Link Connection Identifier for this virtual circuit.

**State**
Set to indicate whether the particular virtual circuit is operational. The possible values are `invalid`, `inactive`, and `active` (default). In the absence of a Data Link Connection Management Interface, virtual circuit entries (rows) may be created by setting the state `active` or deleted by setting the state to `invalid`. Whether the row actually disappears is left to the implementation, so this field may actually read as `invalid` for some arbitrary length of time. It is also possible to set the state of a virtual circuit to inactive to temporarily disable a given circuit.

**Rcvd FECNs**
The number of frames received from the network indicating forward congestion since the virtual circuit was created.

**Rcvd BECNs**
The number of frames received from the network indicating backward congestion since the virtual circuit was created.

**Frames Sent**
The number of frames sent from this virtual circuit since it was created.

**Octets Sent**
The number of octets sent from this virtual circuit since it was created.

### Frames Rcvd
The number of frames received over this virtual circuit since it was created.

### Octets Rcvd
The number of octets received over this virtual circuit since it was created.

### Creation Time
The value of sysUpTime when the virtual circuit was created, whether by the Data Link Connection Management Interface or by a SetRequest.

### Last Change
The value of sysUpTime when the last change in the virtual circuit state occurred.

### Committed Burst
The maximum amount of data, in bits, that the network agrees to transfer under normal conditions during the measurement interval.

### Excess Burst
The maximum amount of uncommitted data bits that the network will attempt to deliver over the measurement interval.

### Throughput
The average number of Frame Relay Information Field bits transferred per second across a network interface in one direction, measured over the measurement interval. If the configured committed burst rate and throughput are both non-zero, the measurement interval equals Committed Burst/Throughput.

## Frame Relay Data Link Connection Management Table

***Access:*** *From the **Icon Subviews** menu for the CiscoFRApp, select **DLCMI Table**.*

### Index
A value that identifies a table entry.

### State
Defines which DLCM scheme is active (and by implication, what DLCI it uses) on the Frame Relay interface. The possible values are `noLmiConfigured`, `1miRev1`, `ansiT1-617-D`, and `ansiT1-617-B`.

### Address Format
The address format, either `q921` or `q922`.

### Address Length
The address length in octets. The possible values are `two`, `three`, and `four`. In the case of Q922 format, the length indicates the entire length of the address including the control portion.

### Polling Interval
A read-write value giving the number of seconds between successive state enquiry messages. The default value is 10.

### Enquiry Interval
A read-write value for the number of status enquiry intervals that pass before a full status enquiry message is issued. The default value is 6.

### Error Threshold
A read-write value for the maximum number of unanswered status enquiries the equipment will accept before declaring the interface down. The default value is 3.

### Monitored Events
A read-write value for the number of status polling intervals over which the error threshold is counted. For example, if within this value the station receives the **Error Threshold** number of errors, the interface is marked as down. The default value is 4.

### Max Supported VCs
A read-write value for the maximum number of VCs allowed for this interface. This is usually dictated by the Frame Relay network. In response to a SET, if a value less than zero or higher than the agent's maximum capability is configured, the agent should respond with "bad Value."

### Multicast
Indicates whether the Frame Relay interface is using a multicast service. The possible values are nonBroadcast and broadcast.

## Frame Relay Error Table

***Access:*** *From the **Icon Subviews** menu for the CiscoFRApp, select **Error Table**.*

### Index
A value that identifies a table entry.

### Error Type
The type of error that was last seen on the interface. The possible values are unknownError, receiveShort, receiveLong, illegalDLCI, unknownDLCI, dlcmiProtoErr, dlcmiUnknownIE, dlcmiSequenceErr, dlcmiUnknownRpt, and noErrorSinceReset.

### Error Data
An octet string containing as much of the error packet as possible (at least up to the PDU). As a minimum, it contains the Q922 address or as much as was delivered.

### Error Time
The value of sysUpTime when the error was detected.

## Cisco Frame Relay LMI Table

***Access:*** *From the **Icon Subviews** menu for the CiscoFRApp, select **Cisco LMI Table**.*

This is a table of Frame Relay Link Management Interface (LMI) information.

**Link Status**
The Data Link Status via LMI.

**Link Type**
The Frame Relay Link Type. Possible types are `dte`, `dce`, and `nni`.

**Enquiry Ins**
Number of Status Enquiry messages received.

**Enquiry Outs**
Number of Status Enquiry messages sent.

**Status Ins**
Number of Status messages received.

**Status Outs**
Number of Status messages sent.

**Update Ins**
Number of Update Status messages received.

**Update Outs**
Number of Update Status messages sent.

**Status TOs**
Number of times a timeout occurred while waiting for Status message.

**Status Enq TOs**
Number of times a timeout occurred while waiting for Status Enquiry message.

**N392 dce**
LMI error threshold for DCE interface. For DTE, value becomes 0.

**N393 dce**
LMI monitored event count for DCE interface. For DTE, value becomes 0.

**T392 dce**
DCE polling verification timer for DCE interface. For DTE, value becomes 0.

## Cisco Frame Relay Circuit Table

***Access:*** *From the **Icon Subviews** menu for the CiscoFRApp, select **Cisco Circuit Table**.*

This is a table of descriptive and statistics information that are generic to Frame Relay virtual circuits.

**DE Ins**
Number of packets received with the Discarded Eligibility indictor (the DE bit) set.

### DE Outs
Number of packets transmitted with DE bit set.

### Drop Pkts Outs
Number of discarded packets that were to be sent.

### Circuit Type
The basic circuit type. Possible types are pvd (permanent virtual circuit), and svc (switched virtual circuit).

## Cisco Frame Relay Ext. Circuit Table

***Access:*** *From the **Icon Subviews** menu for the CiscoFRApp, select **Cisco Ext. Circuit Table**.*

This table contains Cisco implementation specific Frame Relay circuit information. This is a Cisco extension for the frCircuitTable of RFC 1315.

### IF Name
The name of the main interface or the subinterface that this DLCI is associated with.

### IF Type
Type of the subinterface this DLCI is associated with, if configured. Possible types are `mainInterface`, `pointToPoint`, `multipoint`.

### Sub IF Type
For a value greater than 0, it indicates the network management interface index for the subinterface associated with this DLCI. A value of 0 means the DLCI is not associated with any subinterface.

### Map Status
The mapping protocols (internally considered as the 'link type') applied on this circuit. The value ranges from 0 to 2047, For point-to-point DLCI, the value stays zero. Otherwise, the value is a sum. It initially takes the value zero, then, for each type of Protocol, 2 raised to a power is added to the sum. The following table presents respective power and equivalent value for each applicable type:

**Table 14: Mapping Protocols**

| Protocol | Power | Value |
|---|---|---|
| IP | 0 | 1 |
| IPX | 1 | 2 |
| Appletalk | 2 | 4 |
| XNS | 3 | 8 |
| VINES | 4 | 16 |
| DECnet | 5 | 32 |

**Table 14: Mapping Protocols**

| Protocol | Power | Value |
|---|---|---|
| CLNS | 6 | 64 |
| Bridging | 7 | 128 |
| RSRB | 8 | 256 |
| STUN | 9 | 512 |
| LLC2 | 10 | 1024 |

For example, value 3 means the circuit's mapping protocols include IP and IPX. (3 = 2**1 + 2**0, where 0 corresponds to IP and 1 to IPX.) A value of 0 means there is currently no mapping protocol for the circuit.

### Create Type
The last source of the circuit's creation; either `dynamic` or `static`.

### Multicast
Indicates if this DLCI is a multicast DLCI.

### Routed DLCI
The routed DLCI to pair up with this DLCI for switching function. A value of 0 indicates that there is no such routed DLCI corresponding to this DLCI.

### Routed IF
The interface for the routed DLCI that pairs up with this DLCI for switching. A value greater than 0 is the Interface Index for that interface. A value of 0 indicates that there is no such routed DLCI corresponding to this DLCI.

### Uncompress Ins
The number of inbound octets of the data packets, accounted at Frame Relay level after FRF.9 payload decompression is applied. In the case of non-FRF.9, this value could be identical to Circuit Received Octets, unless otherwise noted.

### Uncompress Outs
The number of outbound octets of the data packets, accounted at Frame Relay level before FRF.9 payload compression is applied. In the case of non-FRF.9, this value could be identical to Circuit Received Octets, unless otherwise noted.

## Cisco Frame Relay Map Table

***Access:*** *From the **Icon Subviews** menu for the CiscoFRApp, select **Cisco Map Table**.*

This is a table of protocols and addresses mapping information of the Frame Relay virtual circuits.

**Index**
An index to the mapping information associated with a certain circuit.

**Protocol**
The mapping protocol for this circuit.

**Address**
The mapping protocol address at remote end for this DLCI.

**Type**
The type for the map creation. Possible types are `static`, `dynamic`, and `svc`.

**Encaps**
The encapsulation type for this mapping protocol. Possible types are `ietf` (following IETF specifications) and `cisco`.

**Broadcast**
Displays whether the Broadcast is `enabled` or `disabled`.

**Payload Comp**
Indicates if payload compression is `enabled` or `disabled`.

**Tcp Hdr Comp**
The TCP header compression type, if applicable. Possible types are `inapplicable`, `passive` and `active`.

**Payload Comp Type**
The Frame Relay payload compression type, if applicable. FRF.9 is the Frame Relay Implementation Agreement on FR payload compression. The compression can be done by either software or hardware (when equipped with the supporting hardware), depending on configuration.

# Performance Views

This section provides brief descriptions of the Performance views available for models of Cisco MC3810 devices in SPECTRUM.

Performance views for the Cisco MC3810 provide statistical information about the operation of the device and packet information for the device and its ports. The following performance views are described in this section:


- *Device Performance View* (Page 86)
- *Performance View* (Page 87)
- *Port Performance View* (Page 87)


For more information on Performance views, refer to the ***SPECTRUM Views*** documentation.

## Device Performance View

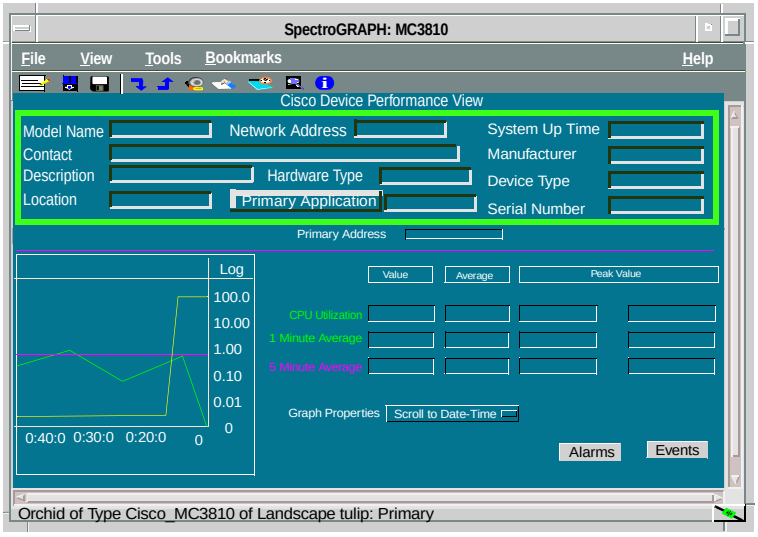
***Access:*** *From the* ***Icon Subviews*** *menu for the Cisco_MC3810 Device icon, select* ***Device Performance.***

This view (Figure 6) includes both a graph and a table that show current, average, and peak values for the following performance statistics:

- CPU Utilization
- 1 Minute Average
- 5 Minute Average

The view also provides button access to the Enterprise Alarm Manager and the Event Log.

**Figure 6: Device Performance View**



# Performance View

***Access:*** *From the **Icon Subviews** menu for the Cisco_MC3810 Interface icon, select **Performance.***

This view provides performance information about the packets being passed through the device. The following packet statistics for the entire device are displayed in this view:

- % Delivered
- % Forwarded
- % Transmitted
- % Error
- % Discarded



# Port Performance View

***Access:*** *From the **Icon Subviews** menu for a selected Port Label in either the Device view or the Device Topology view, select **Performance.***

This view provides performance information about the packets being passed through a particular interface. The following packet statistics for the selected interface are displayed in this view:

- Load
- Packet Rate
- % Error
- % Discarded

Table 15 lists the Port Performance view buttons and the views they open.

### Table 15: Performance View Buttons

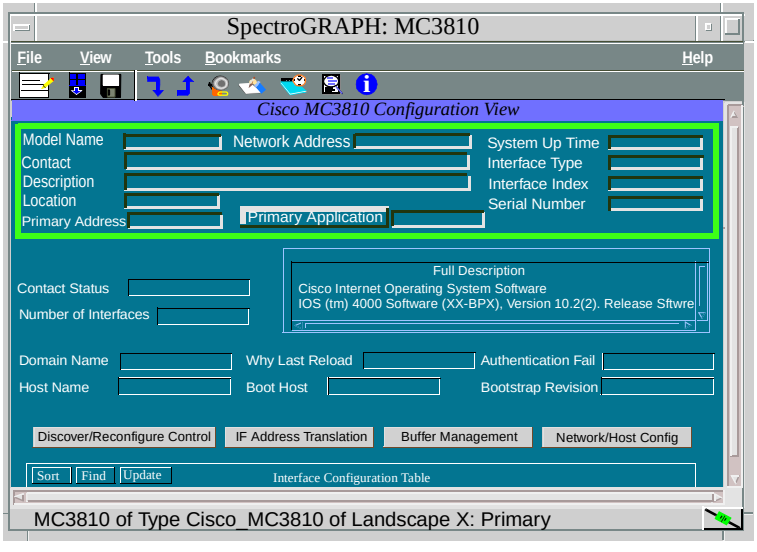
| Button | Opens the... |
|---|---|
| Transmit | Detailed Port Performance view for packets transmitted. |
| Receive | Detailed Port Performance view for packets received. |
| Detail | Interface Detail view, which displays packet, error, and discarded breakdown statistics. |
| Config | *Interface Configuration - Information View* (Page 17). |
| Threshold | Interface Threshold view, which allows you to set the thresholds for load, packet rate, error rate, and % discarded. |
| Alarms | Enterprise Alarm Manager. |
| Events | Event Log. |

# Configuration View

This section describes the Configuration view and subviews accessible from the Cisco MC3810 Device icon.

Configuration views allow you to view and modify current settings for the modeled device and its interfaces, ports, and applications.

**Figure 7: Device Configuration View**




## Device Configuration View

***Access:*** *From the **Icon Subviews** menu for the Cisco_MC3810 Device icon, select **Device Configuration.***

The Device Configuration view for the Cisco MC3810 (Figure 7) provides status and configuration information about the device as a whole as well as on a port-by-port basis. It also provides access the following views:

- *Redundancy and Model Reconfiguration Options View* (Page 91)
- *Interface Address Translation Table View* (Page 92)
- *Cisco Buffer Management View* (Page 92)
- *Network/Host Configuration View* (Page 96)

### Primary Address

The IP Address for the modeled device.

### Contact Status

The status of the Cisco MC3810. Possible values are: `Established`, `Lost`, or `Initial`.

**Number of Interfaces**
The number of ports on the Cisco MC3810.

**Domain Name**
An ASCII text string displaying the domain portion of the domain name of the host.

**Host Name**
An ASCII text string displaying the name of the host.

**Why Last Reload**
An ASCII text string explaining why the system was last restarted.

**Boot Host**
The IP address of the host that provided the currently running software.

**Authentication Fail**
The IP address of the last SNMP authorization failure.

**Discover/Reconfigure Control**

This button opens the *Redundancy and Model Reconfiguration Options View* (Page 91).

**IF Address Translation**



The button opens the *Interface Address Translation Table View* (Page 92).

**Buffer Management**

This button opens the *Cisco Buffer Management View* (Page 92), which provides data information for network traffic to the Cisco MC3810. It counts IP Packets received and tracks activity for the various buffers.

**Network/Host Config**

This button opens the *Network/Host Configuration View* (Page 96).

# Interface Configuration Table

This section of the Cisco MC3810 Configuration view provides the following port configuration information for each of the Cisco MC3810's ports.

**Index**
The port number on the Cisco MC3810.

**Description**
A textual description of the interface, which may include the name of the manufacturer, the product name, and version number of the hardware interface.

**Type**
The type of interface for the port.

### Bandwidth
The estimated bandwidth of the interface measured in bits per second. For interfaces that do not vary in bandwidth or for which no accurate estimate can be made, a nominal bandwidth is provided.

### Physical Address
The Ethernet (MAC) address of the port.

### Operation Status
The current operational state of the port (On, Off, or Testing).

### Admin Status
The desired operational state of the port (On, Off, or Testing).

### Last Change
The System UpTime value when the port entered its current operational state.

### Change Reason
An ASCII text string explaining why the system was last restarted.

### Queue Length
The length of the outbound packet queue in packets.

### Packet Size
The largest Maximum Transmission Unit (MTU) that can be transmitted or received by the port measured in octets.

## Redundancy and Model Reconfiguration Options View

***Access:*** *In the **Device Configuration View,** click the **Discover/Reconfigure Control** button.*

This view allows you to enable redundant addresses, have SPECTRUM notify you of a redundancy update, and reconfigure aspects of your network connections.

**Preferred Addresses**

This button opens the Preferred Addresses dialog box which allows you to select the redundant preferred address for the device.

### Redundancy Administrative Status
Set this button to “Enabled” to cause SPECTRUM to update this model with an address from the Redundant Preferred Address list when the primary address is not accessible.

### Generate Redundancy Alarms
Set this button to “True” to cause SPECTRUM to generate an alarm when a redundant address is selected.

**Automatically Reconfigure Interfaces**
Set this button to "True" to cause SPECTRUM to monitor the number of interfaces for this device. If a change is detected by SPECTRUM, the interfaces displayed in SPECTRUM are updated to reflect the change.

**Create Sub-Interfaces**
Set this button to determine if SPECTRUM should model the devices sub-interfaces. If set to "True," these models will be displayed in the Sub-Interface view of the Physical Interface model.

**Reconfigure due to LINK UP/Down events**
Set this button to "True" to cause SPECTRUM to verify the interfaces displayed when a LINK UP or LINK DOWN event is received.

**Topologically Relocate Model**
Set this button to "True" to allow SPECTRUM to relocate the model to a different topological location as part of the AutoDiscovery process.

**Device Discovery after Reconfiguration**
Set this button to "True" to cause SPECTRUM to verify the interfaces displayed after a model reconfiguration occurs.

**Reconfigure Model**

This button does a complete re-read of the device and its ports. The SpectroSERVER information for this device will be updated if any of the port addresses have been changed or removed, or if the port type has been changed.

**Discover LANs**

This button discovers the devices that are connected to the ports for this device. Clicking on this button will create all LANS which are defined for each port.

## Interface Address Translation Table View

***Access:*** *In the Configuration view, click the* ***IF Address Translation*** *button.*

This view cross-references device IP addresses to device MAC addresses for selected nodes between networks. Double-clicking on any column entry opens an address-specific Address Translation Table Information view allowing you to modify each of the three fields for that entry.

## Cisco Buffer Management View

***Access:*** *In the Configuration view, click the* ***Buffer Management*** *button.*

This view provides the following information:

**Free Memory**
The amount of available memory in bytes.

**Buffer Failures**
The number of packets discarded due to no memory. An attempted packet buffer allocation failed.

**Buffer No Memory**
The number of buffer creation failures due to no memory.

**Max Buffer Elements**
The maximum number of buffer elements the Cisco MC3810 may create.

## Buffer Elements

This area of the Cisco Buffer Management view displays statistics on buffer "elements" (data structures used to enqueue buffers in multiple output queues). Each attribute is summarized for the total interval since first poll and the rate interval between polls (Delta).

**Buffer Elements Free**
The number of buffer elements available.

**Buffer Element Hits**
The number of successful requests for buffer elements.

**Buffer Element Misses**
The number of unsuccessful requests for buffer elements.

**Buffer Element Creates**
The number of new buffer elements created by the Cisco MC3810.

## Buffer Management Buttons

These five buttons located in the Cisco Buffer Management view allow you to access additional buffer management information according to buffer size. Each attribute is summarized for the total interval since first poll and the rate interval between polls (Delta).

This button opens the Small Buffer Management view. Table 16 provides descriptions for the fields presented in the Small Buffer Management view.

### Table 16: Small Buffers View Fields

| Field | Description |
|---|---|
| Small Buffer Size | The maximum size of a small buffer. |
| Max Small Buffers | The maximum number of small buffers the Cisco MC3810 can create. |
| Small Buffer Total | The total number of enqueued small buffers. |
| Small Buffer Free | The number of small buffers available. |
| Small Buffer Hits | The number of successful requests for small buffers. |
| Small Buffer Misses | The number of unsuccessful requests for small buffers. |
| Small Buffer Creates | The number of new small buffers created by the Cisco MC3810. |
| Small Buffer Trims | The number of small buffers returned to the free buffer pool. |

**Medium Buffers**

This button opens the Cisco Medium Buffer Management view. Table 17 provides descriptions for the fields in the Medium Buffer Management view.

### Table 17: Medium Buffers View Fields

| Field | Description |
|---|---|
| Medium Buffer Size | The maximum size of a medium buffer. |
| Max Medium Buffers | The maximum number of medium buffers the Cisco MC3810 can create. |
| Medium Buffer Total | The total number of enqueued medium buffers. |
| Medium Buffer Free | The number of medium buffers available. |
| Medium Buffer Hits | The number of successful requests for medium buffers. |
| Medium Buffer Misses | The number of unsuccessful requests for medium buffers. |
| Medium Buffer Creates | The number of new medium buffers created by the Cisco MC3810. |
| Medium Buffer Trims | The number of medium buffers returned to the free buffer pool. |

### Big Buffers

The button opens the Big Buffers view. Table 18 provides descriptions for the fields presented in the Big Buffer Management view.

**Table 18: Big Buffers View Fields**

| Field | Description |
|---|---|
| Big Buffer Size | The maximum size of a big buffer. |
| Max Big Buffers | The maximum number of big buffers the Cisco MC3810 can create. |
| Big Buffer Total | The total number of enqueued big buffers. |
| Big Buffer Free | The number of big buffers available. |
| Big Buffer Hits | The number of successful requests for big buffers. |
| Big Buffer Misses | The number of unsuccessful requests for big buffers. |
| Big Buffer Creates | The number of new big buffers created by the Cisco MC3810. |
| Big Buffer Trims | The number of big buffers returned to the free buffer pool. |

### Large Buffers

This button opens the Cisco Large Buffer Management view. Table 19 provides descriptions for the fields presented in the Large Buffer Management view.

**Table 19: Large Buffers View Fields**

| Field | Description |
|---|---|
| Large Buffer Size | The maximum number of bytes in a large buffer. |
| Max Large Buffers | The maximum number of large buffers the Cisco MC3810 can create. |
| Large Buffer Total | The total number of enqueued large buffers. |
| Large Buffer Free | The number of large buffers available. |
| Large Buffer Hits | The number of successful requests for large buffers. |
| Large Buffer Misses | The number of unsuccessful requests for large buffers. |
| Large Buffer Creates | The number of new large buffers created by the Cisco MC3810. |
| Large Buffer Trims | The number of large buffers returned to the free buffer pool. |

**Huge Buffers**

This button opens the Cisco Huge Buffer Management view. Table 20 provides descriptions for the fields presented in the Huge Buffer Management view.

**Table 20: Huge Buffers View Fields**

| Field | Description |
|---|---|
| Huge Buffer Size | The maximum number of bytes in a huge buffer. |
| Max Huge Buffers | The maximum number of huge buffers the Cisco MC3810 can create. |
| Huge Buffer Total | The total number of enqueued huge buffers. |
| Huge Buffer Free | The number of huge buffers available. |
| Huge Buffer Hits | The number of successful requests for huge buffers. |
| Huge Buffer Misses | The number of unsuccessful requests for huge buffers. |
| Huge Buffer Creates | The number of new huge buffers created by the Cisco MC3810. |
| Huge Buffer Trims | The number of huge buffers returned to the free buffer pool. |

# Network/Host Configuration View

***Access:*** *In the Configuration view, click the Network/Host Config button.*

This view displays the following information.

### Network Configuration
The network configuration file contains commands that apply to all network servers and terminal services on a network.

### Previous Host Addr
Provides the address of the host that supplied the network configuration file for the managed device.

### Previous File Name
Provides the name of the network configuration file that resides on the managed device.

### New Host Addr
This field replaces the **Previous Host Addr** field when the `Upload Net Config` file is selected.

### New File Name
This field replaces the **Previous File Name** field when the `Upload Net Config` file is selected.

**Upload Net Config File**

Initiates the transfer of configuration file from host to server.

**TFTP Server Addr**
Address used to send the configuration file from server to a host.

**File Name**
The file name where you are storing the configuration.

**Copy Config to Net**

Initiates the transfer of configuration file from server to host.

**Host Configuration**
The host configuration file contains commands that apply to one network server in particular.

**Previous Host Addr**
The address of the host that provided the host configuration file for the managed device.

**Previous File Name**
The name of the last host configuration file used by the device.

**New Host Addr**
This field replaces the **Previous Host Addr** field when the `Upload Host Config` file is selected.

**New File Name**
This field replaces the **Previous File Name** field when the `Upload Host Config` file is selected.

**Upload Host Config File**

Initiates the transfer of configuration file from host to server.

**Copy Config to NVRAM**

Clicking this button writes the current (running) server configuration into Non-Volatile Random Access Memory (NVRAM) where it can be stored and retained even if the server is reloaded.

**Clear NVRAM**

Clicking this button erases whatever was in Non-Volatile Random Access Memory (NVRAM) on the server.

## Cisco Running Config Event/Alarm Configuration View

***Access:*** *In the Configuration View, click the **Running Configuration Changes** button.*

This view allows you to generate various events and alarms for this model.

**Hour to Run Cron Job:**
This button allows you to select the hour of day to run the cron job.

**Generate Event for This Model**
This button allows you to select if you wish to generate an event for this model. Valid options are `True` and `False`.

**Generate Event For All Models Of This Model Type**
This buttons allows you to select if you wish to generate an event for all models of this model type. Valid options are `True` and `False`.

**Generate Alarm For This Model**
This buttons allows you to select if you wish to generate an alarm for this model. Valid options are `True` and `False`.

**Generate Alarm For All Models Of This Model Type**
This button allows you to select if you wish to generate an alarm for all models of this model type. Valid options are `True` and `False`.

**Running Configuration Was last Changed At:**
The date and time the running configuration was last updated.

**Note:** A Cisco device that has firmware 12.1 will have the following additional menu buttons in the Configuration view.

**Memory Pool Monitor**

Opens the *Cisco Memory Pool Monitor Table View* (Page 77).

**Config Copy Table**

Opens the Cisco Config-Copy Table View.

## Cisco Config-Copy Table View

***Access:*** *From the **Configuration** view, select the **Config Copy Table** button.*

A config-copy operation is a request to copy a configuration file of an SNMP Agent running Cisco's IOS software. There are several ways in which this can be done: copying to or from the net (via a protocol like tftp, ftp, or rcp), copying running configurations, or by copying a running or startup config to a file to the local IOS file system and vice versa.

This view displays the ccCopyTable which provides the following information:

**Index**
Specifies a unique entry in the ccCopyTable.

**Protocol**
The protocol to be used for any copy. Will default to tftp if not specified. If the copy operation occurs

locally on the SNMP agent, this object may be ignored by the implementation.

### Source File Type

The type of file to copy from. Either the Source File Type or the Dest File Type (or both) must be of type `runningConfig` or `startupConfig`. Also, the Source File Type must be different from the Dest File Type. If the Source File Type has the value of `networkFile`, the Server Address and File Name must also be created, and these 3 objects together (Source File Type, Server Address, File Name) will uniquely identify the source file. Possible types are `networkFile`, `iosFile`, `startupConfig`, `runningConfig`, and `terminal`.

If the Source File Type is iosFile, the File Name must also be created, and the 2 objects together (Source File Type, File Name) will uniquely identify the source file.

### Dest File Type

The Destination File Type, which is the type of file to copy to. Either the Source File Type or the Dest File Type (or both) must be of type running Config or startupConfig. Also, the Source File Type must be different from the Dest File Type. If the Dest File Type has the value of network File, the Server Address and File Name must also be created, and these three objects together (Dest File Type, Server Address, File Name) will uniquely identify the destination file. If the Dest File Type is `iosFile`, the File Name must also be created, and the two objects together (Dest File Type, File Name) will uniquely identify the destination file. Possible types are `networkFile`, `iosFile`, `startupConfig`, `runningConfig`, and `terminal`.

### Server Address

The IP address of the TFTP server from (or to) which to copy the configuration file. This object must be created when either the Source File Type or Dest File Type has the value networkFile. Values of 0.0.0.0 or FF.FF.FF.FF. for Server Address are not allowed.

### File Name

The file name (including the path, if applicable) of the file. This object must be created when either the Source File or Dest File Type has the value `networkFile` or `iosFile`.

### User Name

Remote user name for copy via rcp protocol. This object must be created when the Protocol is rcp or ftp. If the protocol is rcp, it will override the remote user name configured through the rcmd remote-username configuration command. The remote user name is sent as the server user-name in an rcp command request sent by the system to a remote rcp server.

**User Password**
Password used by ftp for copying a file to/from an ftp server. This object must be created when the Protocol is ftp. Reading it returns a zero-length string for security reasons.

**Notification On Completion**
Specifies whether or not a Notification on Completion should be issued on completion of the tftp transfer. If such a notification is desired, it is the responsibility of the management entity to ensure that the SNMP administrative model is configured in such a way as to allow the notification to be delivered.

**State**
The state of this config-copy request. This value of this object is instantiated only after the row has been instantiated, i.e., after the Row Status has been made active.

**Time Started**
The time the Copy State last transitioned to running, or 0 if the state has never transitioned to running (for e.g., stuck in waiting state). This object is instantiated only after the row has been instantiated.

**Time Completed**
The time the Copy State last transitioned from running to successful or failed states. This object is instantiated only after the row has been instantiated. Its value will remain 0 until the request has completed.

**Fail Reason**
The reason why the config-copy operation failed. This object is instantiated only when the Copy State for this entry is in the failed state.

**Row Status**
The status of this table entry. Once the entry status is set to active, the associated entry cannot be modified until the request completes (Copy State transitions to successful or failed state).

**Add an Entry**
This button opens the Add a Cisco Copy Config Entry view which allows you to add an entry to the Cisco Copy Config Table.

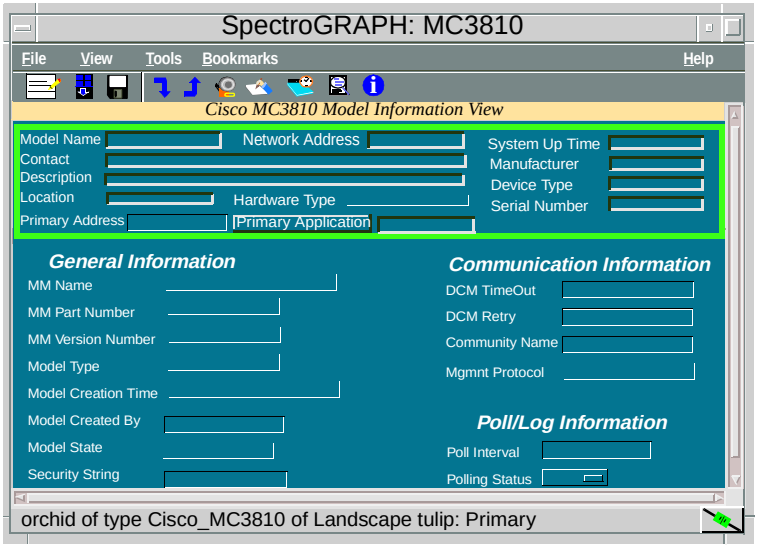
# Model Information View

This section provides a brief description of the Model Information views available for models of Cisco MC3810 devices in SPECTRUM.

***Access:*** *From the* ***Icon Subviews*** *menu for the Cisco_MC3810 Device icon, select* ***Model Information.***

Model Information views provide descriptive and configuration information about SPECTRUM models of individual devices, interfaces, and applications. Figure 8 shows an example of the Model Information view for a Cisco MC3810 interface. Model Information views are also available for each of the Interface icons in the Interface Device and Interface Device Topology views, and for each of the Application icons in the Application view. Although these views may vary slightly depending on the particular entity being modeled, their basic layout and content are similar for most SPECTRUM management modules. Therefore these views are described in more detail in the ***SPECTRUM Views*** documentation.

**Figure 8: Model Information View**



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